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Clinical Surgery in India &c

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# CLINICAL OBSERVATIONS IN SURGERY.

By Dr. Fayrer,

PROFESSOR OF SURGERY AND SURGEON, MEDICAL COLLEGE HOSPITAL.

## I.—PERINEAL SECTION,

This operation has, no doubt, been frequently performed in India, but the records of it in the hitherto published numbers of the "Indian Annals" are confined to one or two cases. I have, therefore, collected some of the most interesting examples that have occurred in my wards in the Medical College Hospital, and present them for publication as illustrations of the benefit that may be derived from this mode of treatment of certain forms of stricture, either when alone, or when complicated with Fistula in perineo.

Much controversy has taken place on this subject of the Perineal section in treatment of stricture, and it has been as strongly objected to by some authorities, as recommended by others. Those who have seen the cases actually treated by Professor Syme, their condition before, and after the operation, and who have also had the opportunity of satisfying themselves long after the operation of the permanent and enduring benefit conferred thereby, can have little doubt as to its propriety in cases of obstinate and recurring stricture resulting from ordinary causes, in irritable constitutions; in strictures that have gradually become all but impermeable after injuries of the perinæum, and in those most obstinate and difficult cases to manage, old hardened almost cartilaginous strictures combined with Fistula in perineo. The cases in which I have had recourse to perineal section, have been of the most obstinate and severe character, and in each I have been as much impressed by the completeness, as by the promptness of the relief afforded. The power to evacuate the bladder, the absence of straining, pain, and local as well as constitutional irritation, the rapid improvement in the general health, all indicate, were the patients own expressions wanting, the great and beneficial change in his condition.

The operation is so simple, and the steps of it so well known, that it is hardly necessary to repeat them here. The chief difficulty in most cases is the introduction of the grooved staff into the bladder. The section if confined carefully to the central line is not difficult, and the subsequent introduction of the catheter into the bladder, or of a curved tube through the opening in the Perinæum, into the bladder is easily managed with a little care.

In cases where the stricture is old and hard, occupies much of the urethra and is complicated by perineal or scrotal sinuses, I think it is better to allow the urine to flow through a tube introduced through the perineal wound into the bladder, until the urethra anterior to the stricture, and into which the sinuses open, has been gradually restored by the repeated introduction of gradually increasing sized instruments to near its natural condition, when a full sized catheter being introduced into the bladder, the urine may be allowed to flow through it. In cases of uncomplicated stricture the better method, I think, is to introduce a full sized catheter into the bladder after the operation, retain it there for 48 hours, if it cause no irritation, and then allow the urine to find its way out either by the wound, or by the natural channel, or through both, introducing an instrument from time to time, say every 24 hours, to keep the urethra open. I am not an advocate for rapid closure of the perineal wound, indeed, I prefer that it should remain partially open for some time after the operation, for I think that the condition of the urethra, for which the operation was rendered necessary, is more likely to be permanently removed by suppuration and cicatrization, than, by allowing the wound to close rapidly.

When cutting the stricture it is to be remembered that it should be thoroughly divided into the sound tissues both before and behind the contracted part. If this precaution be observed, and care be taken to keep in the middle line, two great sources of failure will be avoided. As to hæmorrhage, the same precaution of keeping in the middle line, and so avoiding the trunks of the arteries of the bulb will obviate any fear of it. Though should there be, as there is sometimes, profuse oozing from the bulb itself, it is readily controlled by pressure with a bit of sponge, or if needs be, with a little perchloride of iron.

It is well to continue to pass a full sized instrument occasionally for some time after the operation, to obviate any tendency to contraction. I recommend the patient to have the instrument passed once a week or so, for some months, after he is apparently cured, but this is a precaution that almost all certainly neglect, and it is difficult indeed to persuade them to remain until the perineal wound is perfectly closed.

I have remarked the tendency to contract, particularly in those cases of old and hard stricture, in which the urethra having been almost obliterated has been temporarily restored by the retention within it of large instruments, this contraction is readily overcome by the steady introduction of a full sized instrument every morning for a time, and then at longer intervals, when it subsequently retains a calibre sufficient to enable the patient to void urine without difficulty. The improvement in health and condition, with the loss of the anxious and worn look that told of the constant physical suffering and mental anxiety even in the native countenance is very striking.

## CASE No. 1.

*(Reported by Julian Vanderstraaten, Dresser.)*

### *Previous History.*

Tacoordass, Æt. 44, Hindoo, was admitted into the 1st Surgeons' Ward, for stricture of the urethra, on the 5th July, 1861. According to his statement, he enjoyed good health up to 10 months ago, when he met with the following severe accident. As he was engaged thatching the roof of a hut, he slipped his foot, and fell astride a beam, hurting his perinæum very severely. To the best of his recollection, he thinks the beam was 4 feet below the roof. Immediately after the accident, a great quantity of arterial blood flowed from the urethra; the hæmorrhage continued at intervals, for 5 or 6 days, when it was arrested without the application of any remedy. At this time, he could pass his urine freely in a full stream, but accompanied with severe scalding pain, in the urethral canal. In about 2 months, he began to feel a little difficulty in voiding his urine, and the stream continued to decrease gradually, until a month ago; since which he can pass his urine only by *drops*. To the best of his knowledge, there was no extravasation of urine, after the accident. Pain in the perineal region has continued since the receipt of the injury, but it is now less than before. He states that he never suffered from Gonorrhœa, or stricture before.

### *Present Symptoms.*

The patient is a thin, small sized man, of a weak constitution, his general health is poor. He can only void his urine by drops, this is accompanied with much straining and scalding pain. The urine is a little turbid in appearance. He complains of pain in the hypogastric and perineal regions, There is no mark of any external wound in the latter region, but it is slightly painful when pressed upon; sleeps pretty well at night; appetite is impaired; bowels costive.

*Treatment.*

Castor oil draught, immediately. Fomentation to the hypogastric and perineal regions.

*July 6th.*—Attempts were made to pass Catheters Nos. 5, 4, 3, 2, and 1, but without success. Even the smallest, No. 1, could not be introduced further than the anterior part of the stricture, which was found to be situated just anterior to the bulb. Patient complains of increase of pain in the perineal region; bowels free. Opii gr. i now, and continue fomentations.

*7th.*—This morning the patient was put under the influence of Chloroform, and attempts made to pass the same instruments as yesterday, without being able to get them further than to the seat of the stricture. He continues to void his urine by drops, but with great straining and pain.

Cont. fomentations. Castor Oil draught.

*8th.*—The patient was again placed under the influence of Chloroform, and the same Catheters were used, without success. No. 5 Catheter was introduced up to the stricture and retained there, to cause a little suppuration. It was removed after 8 hours, as the patient began to feel uneasy; bowels were freely moved yesterday. Pain in the perinæum and hypogastric region is severe; sleep not disturbed.

Cont. fomentations as before.

*12th.*—No attempts were made to pass any instruments on the last 3 mornings, as the patient was suffering from slight Diarrhœa. This morning, he feels better, Catheter No. 1 was tried, without success. Still voids his urine by drops, the milky appearance of the urine has disappeared, it is now quite clear.

*13th.*—Had a slight attack of Fever last evening. No instruments to be passed today.

℞. Mist. Quinæ grs. iij. to ℥j, every 4th hour.
Opii. grs. 1½, at bed time.

*Vespere.* Is Feverish, surface warm; tongue dry.

Omit the Quinine Mixture.

℞. Mist. Salin. ℥j, every 4th hour.

14*th.*—Not feverish now; bowels freely opened, last night; slept well. Again No. 1 Catheter was tried, but it could not be introduced into the stricture.

Cont. fomentation. Omit Saline mixture.
Cont. the opiate, at bed time.

15*th.*—Had 5 or 6 loose stools in the last 24 hours, accompanied with severe griping pain; no Fever.

Cont. the opiate, and fomentations.
R. Pulv. cretæ co. c̄ opio ℈j, every 4th hour.

16*th.*—Diarrhœa better; feels weak and has no appetite. He has lost flesh since his admission.

With the greatest difficulty and much perseverance, No. 1 Catheter was passed into the bladder, and urine drawn off through it. As an instrument had at last, been passed into the bladder, it was thought advisable to seize the opportunity and cut into the stricture at once. The Catheter was withdrawn and *Syme's* No. 1 grooved staff, introduced into the urethra, and through the stricture, with some difficulty. The shoulder of the staff, was kept against the anterior part of the stricture. The patient was now put under the influence of Chloroform, and removed to the operating theatre. An incision was made in the Perinæum, in the median line, along the raphe and the strictured part of the urethra cut into, the knife being guided by the groove in the staff. The stricture was freely divided anteriorly and posteriorly, it was about the ¼ of an inch, in breadth, and offered great resistance to the knife, causing a grating sound, when cut into. There was very little hæmorrhage during the operation; none of the vessels of the bulb were injured.

A full sized Catheter No. 8 was passed into the bladder through the urethra. It is to be retained there until any symptoms of irritation arise. R. Tr. opii ʒss. *stat.* Vesper. There was a little bleeding from the wound at noon, it was arrested by the application of Tr. Ferri Mur. No Fever; appetite bad; bowels slightly loose; pulse feeble.

Cont. Tinct: opii ʒss, at bed time.

17*th.*—Complains of pain in the wound; no Fever; pulse feeble; tongue clean, but dry; bowels moved 4 times, in the last 24 hours. Passes urine freely through the Catheter, which is to be still retained in the bladder.

Cont. opiate as before.

18*th.*—This morning the Catheter was removed from the bladder, after having been in it, full 48 hours. No fever; pulse still feeble; tongue dry. Bowels better. Patient is in very low spirits, and takes very little food. He is in a very emaciated condition. The wound in the perinæum is quite healthy.

Cont. opium at bed time. Port Wine 2 measures,
to be given in divided doses during the day.

19*th.*—All the urine flows through the wound. Pulse still feeble; tongue dry; sleeps well at night. No. 7 Catheter was introduced through the urethra into the bladder, and retained there.

20*th.*—The Catheter was withdrawn from the bladder, this morning. There was a little bleeding from the wound; tongue still very dry and pulse feeble; no fever. Patient takes very little food, although he is allowed a liberal diet.

Cont. as before.

23*rd.*—Urine continues to flow through the wound, none comes through the natural passage. No. 7 Catheter has been passed every morning. The wound is a little smaller, a little healthy pus is discharged from it. Tongue dry and pulse still very feeble; bowels regular.

24*th.*—Bowels are a little loose, in other respects he is just the same as yesterday, but in better spirits.

R. Pulv. cret. co. c̄ opio ℈j, statim.
R. Mist Quinæ grs. iij to ℥i, every 4th hour.
Cont. opiate and Port Wine as before.

26*th.*—Doing pretty well; bowels are better; tongue is a little moist and the pulse is a little fuller. The patient is a little more cheerful, appetite has improved. No. 7 Catheter is daily passed into the bladder.

Cont. as before.

28*th.*—The wound is quite healthy and gradually contracting, no urine comes through the natural passage yet, No. 8 Catheter passes freely into the bladder. Is improving in health.

31*st.*—This morning he passed a little urine through the natural passage, but the greater part came through the wound. Tongue moist; pulse fair.

*August* 1*st.*—Passed a little more urine through the urethra this morning. The wound is granulating fast; Catheter No. 8 freely passed into the bladder.

Cont. as before.

3*rd.*—Equal quantities of urine came through the urethra and wound; No. 8 Catheter passed freely; had 5 or 6 loose stools in the last 24 hours.

R. Pulv. cret. co. c opio ℈j, every 4th hour.

*4th.*—Diarrhœa better; Catheter passed as usual; urine flows through both passages freely.

*8th.*—The greater part of the urine comes through the natural channel freely; general health much improved; wound fast closing; he is gaining flesh.

*12th.*—The wound has almost closed, only a few drops of urine coming through it; Catheter No. 10 freely passes into the bladder.

*18th.*—The wound has entirely closed; the passage is quite clear; patient feels much stronger and has a good appetite.

*22nd.*—He wishes to leave the Hospital, as he is now quite cured. As there is some fear that the passage might contract a little, he is requested to come to the Hospital at least once a fortnight to have an instrument passed into his bladder. Discharged cured, and much improved in health and strength.

### *Remarks.*

The above is a very interesting case, as it affords a favorable illustration, of the good results to be obtained by dividing freely a bad stricture, by Syme's operation, through the perinæum. As soon as the smallest instrument is introduced into the bladder, the urethra can be safely cut into, the knife being guided by the groove, which must be firmly held in the median line. Syme's grooved staff, has this advantage, that its shoulder can be fixed against the anterior part, while the knife is guided by a groove in that part, of the instrument which is in the stricture. There is no danger of wounding the arteries of the bulb if the incision is made directly in the *median* line. When the patient was admitted, the smallest sized instrument could not be got into the bladder, but in six weeks, he left the Hospital, with his urethra restored to its normal condition. There is some fear of the passage contracting after the operation, but it is easily overcome by passing a full sized catheter occasionally, for a few months.

*Medical College Hospital, Sept.* 6*th*, 1861.

## CASE No. 2.

*(Reported by Baboo Kally Krishna Ghose, Dresser.)*

Annundo Chunder Shaw, Æt. 40, Hindoo, residing at Hatkhola, (native of Nagpore), was admitted 12th June, 1861. for operation, for Stricture of Urethra, and Perineal Fistula.

### *Previous History.*

Patient states that about 13 years ago, he had an attack of venereal disease (gonorrhœa, sore and bubo), from which he

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suffered for about a period of 8 months. The gonorrhœa was at first accompanied with much scalding and fever, and a profuse discharge of a yellowish white matter. Towards the latter part of his illness, the scalding and fever had gone, though the discharge continued. He was cured of these by native medicines. A few days after this he had an attack of rheumatism from which he suffered for about a year, all the larger joints were affected and the knee-joints especially were much swollen and painful. He was put under a course of mercurial treatment which was pushed to salivation three or four times. By these measures as well as by the application of medicines to the affected joints he was quite relieved of the rheumatism, though his constitution was broken down. He then enjoyed apparent good health for about a year, after which, that is about 10 years ago, he had another fresh attack of gonorrhœa which ran the same course as its predecessor, but from the effects of which patient is still suffering; the discharge having obstinately persisted. After the lapse of a period of 8 months from the commencement of this second attack of gonorrhœa, the patient began to complain of some difficulty in passing urine. He perceived that each time he made water, the last of the urine came in drops, that he had to make water oftener than before, and that the urine flowed in a very thin and obstructed stream. By degrees, he began to feel some pain in his perinæum when he made water. An abscess appeared there, but this was allowed to take its own course and not interfered with for some time, when it was opened by a native surgeon; a great deal of matter was evacuated. The sore healed partially but a sinus remained, through which the urine began to flow. About 2 years ago, another abscess formed on the left side of the scrotum. This opening of itself left a sinus through which also urine began to flow. Patient says, that the natural passage was not totally obstructed, but that the urine passed in a very small stream Purulent or rather ichorous matter also passed from the sinuses and the urethra. About a year ago a native surgeon attempted to obliterate these sinuses by the application of caustics, but this as the patient says made them worse than before.

### *Present Symptoms.*

12*th June*, 1861.—Patient, a moderately healthy looking man, has stricture of the urethra, which extends from the front of the bulb to within an inch of the orifice of the urethra. The whole of the canal to the extent mentioned is almost obliterated, so that the smallest sized Catheter can scarcely be passed into it. It is hard, resisting, and contracts strongly when the catheter is passed into it, so that the instrument is held firmly in its passage and not allowed to enter unless a sufficient degree of force is used. It feels gristly and rough to the instrument. There are several sinuses, one on the left side of the scrotum and the others in the perinæum. These communicate with the urethra. Their walls are hard and cartilaginous, and there is much discharge of a thin ichorous matter from them as well as from the urethra. The greater portion of the urine flows through the sinuses in drops, and a small quantity only passes through the natural passage in a very thin thread-like twisted stream. The scrotum is thickened, hard, irregular and rough. Patient complains of pain in making water. He has no fever, his pulse is fair, tongue clean and moist, bowels regular, appetite good, sleep sound.

*Treatment.*

On the day of his admission, the patient had one grain of opium, and fomentations over the hypogastric region. The next day, that is on the 13th of June, Catheter No. 3 was passed into the stricture with much difficulty, and he had an ounce of Castor oil given him. On the 14th, Catheter No. 4 was passed into the bladder with some difficulty and some straw-colored urine drawn out. Iodide of potassium grs. iij, with decoction of Hemidesmus ℥j, was ordered him thrice daily. On the 16th June, Catheter No. 5 was passed into the bladder, but the patient complained of severe pain after the passing of the instrument, which was followed however by no constitutional disturbance of any consequence. For the two following days nothing was done, and the patient was left to himself with the medicine prescribed above. He had no fever. On the 19th June, Catheter No. 5 was again passed into the bladder, and a quantity of reddish colored urine drawn off; discharge from the urethra, and the sinuses continued as before. On the 22nd, Catheter No. 4 was passed easily into the bladder, but the patient complained of great pain in the urethra and perinæum. This pain continued, and he had fever on the 24th, which came on with chills at 12 noon, and left him 3 or 4 hours after. The next day, that is on the 25th, the fever returned and continued till the morning of the 26th, when he was ordered saline mixture ℥j, every 3 hours, a dose of salts and senna, and fomentation to the perineal region. On the 27th, there was no recurrence of fever, the bowels had been well opened, the urine began to flow throw the urethra more freely than before, pain in the perinæum became less, but the scrotum had swollen and become painful, and the discharge from the urethra and the sinuses continued as before. Goulard's lotion ℥viii with Tinct. opii ʒij, was ordered as a lotion for the scrotum, which was to be supported by means of a suspensory bandage. Saline mixture was omitted, and Quinine mixture (gr. iii to ℥i) was ordered thrice daily. On the 28th, swelling of the scrotum continued though the pain was less than before; there was no fever. Nitrate of silver solution (ʒss to ℥j) was applied over the scrotum, and the quinine mixture continued. On the 29th, it was found that there was infiltration of the scrotum which had become painful but not very tense; patient had no fever, but his urine was passed with much difficulty and his bowels had become constipated; opium gr. i was ordered to be given every 6 hours, poultices and fomentations to the scrotum and a senna mixture at four P. M. The next day, that is on the 30th, the tension and pain increasing the scrotum was incised in several places, and urine mixed with blood flowed out. Poultices were applied and the opium was continued. On the 1st of July, the swelling and pain had much abated, but there was still some inflammation about the scrotum; a strong solution of nitrate of silver was applied over it. On the 4th of July, a portion of the scrotum of about the size of an eight anna piece, assumed a sloughing character and became very painful; the patient had become weaker than before; there was loss of appetite and a foul tongue, but no fever. Poultices were applied and quinine mixture of 3 grs. to ℥j thrice daily, with opium gr. j every 6 hours was ordered. On the 6th July, the sloughs had separated and a healthy ulcer was left. The patient felt better, but the urine began to flow in drops through the urethra and the sinuses, owing to some obstruction caused by something like an abscess near the bulb of the urethra. It was, therefore, thought advisable to perform the operation for perineal section. Accordingly, the patient was taken to the operating theatre, placed on his back upon a table as in the operation for lithotomy, and then put under the influence of chloroform. The operation was commenced by passing a middle sized grooved staff into the urethra. An incision was then made with a scalpel through the raphe of the perinæum above the anal orifice into the urethra, in front of the bulb, and about an inch of the stricture was cut, by the scalpel being carried forwards and upwards through the groove in the staff. A middle sized tube was passed into the bladder through the perineal incision and kept in. Two other incisions were made over the scrotum. There was not much bleeding after the operation. Poultices were applied over the scrotum and Tinct. opii ʒss, was ordered to be given at bed time. On the 7th, there was no bleeding from the wounds, the urine was seen dribbling constantly through the catheter; patient had no fever, his pulse was fair, tongue clean and moist, bowels regular, appetite good. Dressing and medicine were continued. On the 8th, the wounds had suppurated, urine dribbled through the Catheter as before; there was no fever. From this day to the 16th the gum elastic tube was kept in, urine flowed through it, and a few drops through the urethra also; the patient had no fever, and the wounds were looking healthy. On the 17th, the tube was taken out and silver Catheter No. 5 was introduced into the bladder through the urethra, and urine drawn off. Strapping was applied to the perineal wound, it being much everted; and simple dressing to the wounds over the scrotum, Tinct opii ʒss, was given. On the 19th, the Catheter was taken out after having been kept constantly in for two days successively. It was found that the urine had been flowing mostly through the Catheter and partly through the perineal wound which was granulating and contracting. Catheter No. 8 was passed into the bladder the same day and kept in, dressing and medicine continued. On the 21st July the Catheter was taken out and the urethra being left to itself, it was found that the urine flowed bothways, through the urethra as well as through the perineal wound, but in larger quantity through the latter passage. The wounds were cicatrizing, but there was some yellowish discharge from the urethra and the sinus on the left side of the scrotum; patient had by this time improved a little in general health. From this day to the 25th, the urethra was left to itself and the urine flowed both ways, as mentioned above, there was ichorous discharge from the urethra and the sinus on the left side of the scrotum; Sulphate of Zinc injection gr. ii to ℥j, was ordered to the urethra. On the 26th, Catheter No 5 was passed and kept in. On the 27th, Catheter No 7 was passed but not kept in; patient had slight fever the the night before, and he was therefore ordered Quinine mixture of gr. iij to ℥j thrice daily, and Tinct. opii ʒss once. On the 30th July, Catheter No. 8 was kept in, there was no fever. The wounds were cicatrizing, some urine flowed through the perineal wound as before; discharge from the sinuses and urethra was less than before. On the 31st July, catheter No. X was passed and kept in. On the 1st of August, catheter No. XI was passed and kept in. On the 2nd catheter No. XII was easily passed into the bladder and kept in, the urine flowed through it as well as through the perineal wound which had nearly healed up. On the 5th August, the urine was flowing as usual, but there was much discharge from the urethra and the sinuses on the scrotum; the part over the pubis was swollen and hard, so that a counter opening was made there and a quantity of pus evacuated. On the 10th August, the patient had diarrhœa, the urine was flowing as usual through the catheter and in drops through the perineal wound which was closing fast. Catheter No. X was passed and ordered to be kept in constantly and Pulv. cretœ. co cum opio ℈j, given every 4 hours. From this day to the 26th, the patient has gone on gradually improving, the catheter having been taken out and re-passed regularly every morning; the urine was passing mostly through the catheter, and a few drops only through the perineal wound which had nearly closed up. There being, however, much discharge from the urethra and the sinuses on the scrotum, an incision was made on the left side of the scrotum to evacuate another collection of pus. Sulphate of zinc injection was continued.

Thus the patient has been gradually improving from the 26th of August, to this day the 25th of September, 1861. His urethral passage has now been almost restored to its natural condition. All the urine flows through the catheter; the perineal wound has closed up, and a small slit like opening now only remains through which it is doubtful whether any urine flows or not; the discharge from the urethra and the the sinuses on the scrotum has become considerably less than before, and the patient has improved much in general health. Catheter No. X is now passed every morning; a solution of Sulphate of zinc is also daily injected into the urethra.

### *Remarks.*

The progress of this case was delayed by the repeated formations of pus at the root of the penis communicating with the urethra, which had become extensively diseased, in consequence of the extravasation of small quantities of urine. It is not so satisfactory as the first case, yet it well illustrates the benefit of the operation in complicated cases of perineal fistula combined with bad stricture.

## CASE No. 3.

*(Reported by Baboo Kally Krishna Ghose, Dresser.)*

SOBESHUR NUNDY, ÆT. 45, Hindoo shopkeeper, Jorah Bagan (Calcutta,) was admitted 15th April 1861, for operation for stricture of Urethra and Perineal Fistula of 15 years duration.

### *Previous History.*

Patient states that about 15 years ago he had gonorrhœa. Has had it several times during the past 15 years, and has a discharge now. It commenced at first with much scalding and fever, the two latter disappeared after a few days but the discharge continued. He has been salivated by natives several times for the cure of this disease as well as of rheumatism from which he suffered about 2 years. Thirteen years ago, that is about 2 years after he had the first attack of gonorrhœa, he perceived the commencement of stricture. He began to pass his urine in a thin stream. About 8 years ago the stricture had so completely closed the urethral passage, that extravasation of urine was the result. The scrotum suppurated and sloughed in several places. By degrees, however, the ulcers healed up but sinuses formed, through which the urine began to flow. The urethral passage was not completely obstructed but urine came through it in a very thin and broken stream. He was then according to his own account admitted into the First Surgeon's ward of the Medical College Hospital under Dr. O'Shaughnessy, and left it somewhat relieved about 2 months after. Two years ago the stricture again increased and he had extravasation of urine, the result of which was the formation of fistulas in the perinæum in the manner mentioned above. He was admitted into this ward and left it 5 months after, partially cured. The perineal fistulæ had closed though the others were still as bad as before, for pus and urine flowed through them as well as through the natural passage. He was then ordered to attend the Hospital every third or fourth day, so that he may have the Catheter passed. This he did not do regularly, and the consequence is that for the last 3 months he has been suffering from the stricture which had again become as bad as ever.

### *Present Symptoms.*

15*th April*, 1861.—Patient is a tolerably healthy looking man. He has 3 fistulæ in the scrotum. One of them is situated above the right testicle, an inch below the root of the penis, and the two others are in the median line between the testes. These all communicate with the urethra, and the two latter with each other also. Their walls are hard and cartilaginous, and there is discharge of a thin sanious matter and urine through them in large quantities, causing during its flow a burning sensation in the sinuses. There is stricture of the urethra, and the canal is much distorted. Urine flows through it in drops only, a very small sized catheter can be passed through it with much difficulty. It feels hard and unyielding to the instrument. Patient has no fever, his pulse is good, tongue clean and moist, appetite good. He sleeps pretty well,

### *Treatment.*

On the day after his admission the operation for perineal section was performed as usual, by passing a grooved staff into the urethra and cutting freely through the stricture with a scalpel. A tube was then introduced into the bladder through the wound and kept there. Two grains of opium were ordered to be given immediately after the operation, and at bed time. On the 17th of April, the day following the operation, there was no bleeding, or fever, the urine was seen flowing constantly through the tube and a few drops through the fistula, none through the natural passage, but the patient said that each time he strained in making water he felt a sensation of weight and burning at the root of the penis. Catheter was passed into the bladder through the urethra.

On the 19th, patient had pain in abdomen, the wound in the perinæum was healthy. Very little urine came through the fistulæ, nearly all through the tube. Fomentation to the abdomen was ordered and nitrate of silver pencil to the sinuses. The next day, the sinuses were ordered to be injected with solution of sulphate of zinc (gr. ij to ℥j), he had fever on that day, and saline mixture was given him every 4 hours. On the 21st he was ordered Liquor potassæ m x with nitric ether ʒss thrice daily and nitrate of silver probe to be introduced into the sinuses. On the 26th, the discharge of pus from the sinuses had become much lessened. No urine flowed through them or the natural passage, but all through the tube, the perineal wound was healthy. On the 28th, the above medicine was omitted and cod-liver oil ʒss ordered twice daily. On the 5th of May, 1861 the sinuses not healing in the scrotum were laid open and water dressing applied, the urine was flowing as before through the tube. On the 6th, oiled lint was ordered to be put into the wound in the scrotum. On the 19th the tube was removed, and a full sized catheter was ordered to be introduced into the bladder through the urethra, and to be kept there constantly; the perineal wound had began to close, no urine came through the fistulæ which had contracted. On the 21st, the urine passed through the catheter and a few drops only through the perineal wound and none through the fistulæ. It was thought advisable to re-open the perineal wound, and to re-insert the tube. The catheter was to be passed every day through the urethra down to the tube. Iodide of potassium gr. iij was ordered to be given with an ounce of decoction Hemidesmus thrice daily, and opium gr.iss at bed time, as he could not sleep without it. June 12th. Tube again removed, a full sized catheter was introduced into the bladder through the urethra and kept in. The right testicle had swollen once, but the swelling and inflammation was relieved by the application of a strong solution of nitrate of silver. On the 22nd June the urine flowing through the catheter and a few drops through the fistulas on straining at stool—the perineal wound which had nearly closed gave passage also to a few drops of urine. Catheter No. X to be retained in the bladder. Tinct Ferri sesquichlor was ordered thrice daily, and injection of sulphate of zinc (gr.ii to ℥j) to the urethra, through which there was some gleety discharge.

*3rd June.*—Sinuses had all but closed, the general health of the patient much improved; he took leave and did not return.

This man was very impatient and feeling so much better in all respects left the Hospital when not quite cured.

## CASE 4.

*Reported by Baboo Kally Prusono Ghosaul, Dresser,*

Pudma Lochun, Æt. 50, Hindoo, Purohit, residing at Amta was admitted 26th April, 1861, with Stricture of the Urethra, and perineal sinuses.

### *Previous History.*

Patient states, that about 10 years ago, he had a bubo in his right groin, from which he suffered for about a month. The bubo suppurated and was opened. He was treated at the General Hospital, as an out-patient, and was cured within a month. He never had chancre.

After this he enjoyed apparent good health. But three years ago, he had an attack of gonorrhea from which he suffered for about two months; it was not very acute and was not attended with fever or much pain, but he was subject to a severe smarting sensation on making water. The discharge, which was watery for the first few days, soon became a thick purulent fluid of creamy consistence. He was treated by a native physician, and was relieved within two months. But traces of discharge occasionally appeared as indicated by the marks on his dress.

Two months after this, he began to feel some difficulty in passing his urine and gradually to make water in a thin stream. About two years ago, he had an abscess in his left ischio-rectal fossa, which suppurated and burst, it contracted, but left a sinus there, from which a little discharge still continues to flow.

About six months ago, he began to feel much difficulty in passing his urine, and at the same time had several abscesses in the perinæum. These abscesses burst and left many sinuses. Urine now began to flow through these sinuses. This state of things still continues, and being much annoyed by it, he was admitted into the Hospital with the following symptoms.

*April 26th* 1861.—Patient is a moderately strong man, not anæmic; his general health tolerably good. His appetite fair, bowels costive, tongue clean and moist, pulse natural, has no fever, has several sinuses in the perinæum; two in the left ischio-rectal fossa; one of which is about two inches deep and communicates with the rectum. Three of the others in the perinæum are about two inches deep, through which urine flows in a small quantity. There are two in the scrotum and one communicating with the urethra, where that part is thickened, very much indurated and cartilaginous. There is little discharge from each of these sinuses. The prostate can be felt enlarged. There is much difficulty in making water. He has stricture of the urethra, which is very obstinate and does not yield even to the smallest catheter. It is situated in front of the bulb of the urethra. There is a gleety discharge from the urethra.

After his admission into the Hospital, catheter No. 7 was tried on the morning of the 27th April, the attempt was not successful, the stricture being so obstinate. A drachm of blue ointment with an ounce of simple ointment was ordered to be rubbed on the perinæum, and fomentation also applied. He had fever that evening.

On the 28th April, the catheter No. 1 was again tried, and it reached the bladder with much difficulty. On the 29th catheter No. 2 was tried, and it passed the stricture with much difficulty, on the 30th, the catheters No. 2 and 3 were introduced, passed the stricture, and reached the bladder, not without difficulty. On the 1st May, the catheter No. 3 and 4 passed the stricture, and so also on the following day.

On the 3rd May, a medium sized catheter was ordered to be kept in the bladder. During the last few days he continued to pass his urine in a thin stream, by the natural passage, urine also continued to flow through the perineal sinuses, but now a middle sized catheter being kept in the bladder, he passed his urine through the catheter. But still a few drops continued to pass through the sinuses.

On the 4th a full sized catheter was introduced into the bladder, through which he passed his urine, though not wholly; some still flowed through the sinuses. His bowels being costive, senna and salts were ordered. His general health was as before in other respects. This treatment was continued.

On the 13th, the patient could pass his urine through the catheter, but still some continued to flow through the perineal sinuses which were in the same state. They had not contracted. There was little discharge from them. At that time, patient's appetite was good; bowels regular.

On this day, the operation of perineal section was performed at that part of the urethra which was hard and cartilaginous. A gum elastic tube was introduced into the bladder by the wound. Through this tube, urine continued to flow, and since then, there has been no more flow of urine through the sinuses. Fever did not follow the operation. The sinuses began to contract.

On the 17th all the sinuses have nearly closed, except two in the perinæum and the Fistula in ano. The edges of the wound were covered with healthy granulations. The gum elastic tube was taken out. Water dressing was applied to the wound. A full sized catheter was introduced into the bladder through which patient passed his urine freely; little urine flowed by the wound and none by the remaining sinuses. The wound began to contract. Under this treatment, patient continued till 20th May, when the posterior sinus in the perinæum was divided, and oiled lint introduced into the wound. This treatment was continued till the 1st June, during which period, the wound in the perinæum contracted much; the sinuses healed, little urine still passed through the wound, none by the anterior sinus in the perinæum; but still there was a little discharge from it. Patient passed his urine through the catheter.

On the 1st June, the Tincture of iodine was injected into the anterior sinus in the perinæum; and solution of sulphate of zinc into the urethra and perineal wound. This treatment continued till the 19th July, during which period, the wound in the perinæum contracted much, only a little opening being left.

It was touched occasionally with nitrate of silver. The sinus in the same state. The catheter No. 11 or 12 could be passed easily into the bladder.

On the 19th July, the Fistula in ano was divided, and also one of the sinuses in the perinæum laid open. The wounds now began to heal and were completely closed by the 15th August.

During this period, the patient passed urine through a catheter which could be passed easily into the bladder, but still a little urine flowed by the perineal wound, which had been touched with a nitrate of silver probe.

On the 22nd August, the small opening in the perineal wound had been touched with Liqr. Lyttæ, by which the closure of the opening was so far completed, that a minute aperture only remained. But after the 27th August, there was no more flow of urine by that opening. On the 2nd Sept. 1861, the patient left the Hospital of his own accord. The wound perfectly closed and the cure complete.

### *Remarks.*

This is a very good example of the application of the operation to a case of extensive and chronic Fistula in perineo, complicated with obstinate stricture; (more obstinate I never saw.) The urethra had become like a mass of cartilage, and when divided in the groove, it creaked and yielded, as a densely fibrous tumour would have done under the knife.

He came into Hospital with perinæum and scrotum riddled with fistulæ, the urethra thickened to an extraordinary degree and almost impermeable.

He was unable to pass urine through it, and his life was miserable. He left the Hospital with the urethra restored to its natural calibre and the sinuses in the perinæum quite closed. He had gained much in flesh and was in excellent spirits, was anxious to leave the Hospital, feeling that he was rapidly improving for sometime before he actually went.

## CASE No. 5.

An African, named John S ——— Æt. 45, who had lost the glans and anterior portion of the penis from previous phagedæna, was admitted into the Hospital suffering from a tightly contracted stricture in the usual site, just anterior to the bulb. There was also a sinus communicating with the urethra, and through this, urine had been extravasated on to the lower part of the abdomen rendering incisions necessary for its evacuation; for some time he continued to pass his urine through this opening in the Inguinal region, he suffered severely from irritative fever and sloughing of the cellular tissue. An opening was made in the usual way in the perinæum, and the tube was introduced through the wound and retained for some days to allow the wound in the groin to close. The natural channel, as much of it as remained, was soon restored; the perineal wound healed and he was cured completely.

The relief afforded by the incision and passage of urine through the opening made into the perinæum in this case was remarkable. The irritative fever rapidly disappeared, he regained his health, strength and spirits.

He was on the point of leaving the Hospital, when he was attacked with a violent catarrh which on the second or third day brought on symptoms of laryngitis. This became more severe and he died suddenly in the night, in spite of all the efforts made by the Resident Medical Officer to save him. The larynx was examined after death and found to be inflamed and œdematous. No further p. m. examination was allowed by his friends.

## II.—RESULTS OF OPERATION FOR RADICAL CURE OF HERNIA.

In the XIII. No. of the "Indian Annals," I gave a short account of the results of the operation for the Radical Cure of Inguinal Hernia, as performed in my wards of the Medical College Hospital, between the months of June 1859 and February 1861. I now submit a further report of the cases since operated on ; the results are scarcely less favorable.

I have endeavoured to test the merits of this operation as fairly as possible, and have carefully avoided including among the cases returned as apparently cured, any that were at all doubtful, nor have I, indeed, returned them as cured until submitted to the severest tests, such as walking about for some hours without a truss, lifting heavy weights, jumping, &c. &c. The cases returned as benefited only, were those in which after the external wound had cicatrized, and the truss had been worn for some time, Hernia, again protruded in part, though much less than before the operation. I believe that had some of these cases been operated on a second time the cure would have been completed. In four cases the protrusion was smaller and much more readily controlled by the pressure of the truss. I believe therefore, that the operation is a good one, but that it is attended with some uncertainty as to success. In carefully selected cases, recent herniæ, and the canal not obliterated by approximation of the rings, there is a very fair prospect of complete success; in old and large protrusions, though we may not be able to give much hope of perfect cure, yet we may expect much improvement. The operations in my wards have all been performed with Wutzer's instruments. I am inclined to believe that a modification of the German operation, Wutzer's, as proposed by Professor Syme, by using a more simple instrument, would be an improvement, and I hope, before long to put it to the test.

As yet, in no case, have I seen any worse symptom than a little sloughing of the integument, where the needles emerge, or where the compressor has squeezed the skin tightly. Beyond the delay,and inconvenience so caused,this was of no moment,indeed I am not sure that in the end it is not beneficial, the contraction of the cicatrix tending to bind and consolidate the parts.

With a simple form of instrument, or even one of Wutzer's, better made than those I have had the opportunity of using, the risk of sloughing would be to a great extent avoided, as it has with me only occurred when the tension on the needles, or the force of the compressor has been excessive, and unavoidably so, in certain cases, in insuring the retention of the plug within the canal. I frequently find more difficulty in satisfactorily invaginating the scrotum into the canal and retaining it there in natives, than in Europeans, owing to the almost invariable thickened condition in them of the scrotum and subjacent sac. The results of the operation in the two races have proved pretty equal notwithstanding. I have nothing further to add in reference to the operation itself. The steps of it are now well known. It would be well if Mr. Scriven's suggestions were borne in mind, and the results published by all Medical Officers who have performed the operation.

We have, or might have, a sufficient number of cases to draw conclusions from as to the difficulties, or other peculiarities and the present success, partial or complete of the operation ; but we still want evidence as to its ultimate and permanent success. This in a Hospital, such as the one I am attached to, is almost impossible to obtain, as the patients seldom return after being discharged, but in Regimental Hospitals where the men remain under observation of the Surgeon this might be more readily obtained, and I trust that the experience of each Officer so situated may be published.

I subjoin a statement of cases treated since the last report in February 1860 up to August 1861.

| | Europeans. | Natives. | Total. |
|---|---|---|---|
| Apparently Cured, ... ... ... | 4 | 2 | 6 |
| Benefited, ... .. ... ... | 3 | 1 | 4 |
| Failed, ... ... ... ... ... | 0 | 2 | 2 |
| Total cases operated on, | | | 12 |
| Cured, ... ... ... ... ... | 6 | | |
| Benefited, ... ... ... ... | 4 | | |
| Failed, ... ... .. ... ... | 2 Cases, | | 12 |

The accompanying tabular statement of the cases, has been carefully drawn out by my House Surgeon, Baboo Kassee Chunder Dutt.

## ABSTRACT.

Cases of Inguinal Hernia treated in the Medical College Hospital, by Wutzer's operative for the Radical Cure, from June 1st, 1859 to August 31st 1861.

| | Europeans, Americans. | Natives. | Total. |
|---|---|---|---|
| Apparently Cured, ... ... ... | 7 | 5 | 12 |
| Benefited, ... ... ... ... | 4 | 3 | 7 |
| Failed, ... ... ... .. ... | 1 | 2 | 3 |
| Total cases operated on, .. .. | | | 22 |
| Cured, ... ... .. ... | | 12 | |
| Benefited,... ... ... ... ... | | 7 | |
| Failed, ...... ... ... ... ... | | 3 | |

J. Fayrer.

## *List of Operations for Radical cure of Oblique Inguinal Hernia, performed in the First Surgeon's Ward, Medical College Hospital, from* 1st *February* 1860 *to* 31*st August* 1861.

| Number. | NAMES. | Age. | Occupation. | Race or Caste. | INGUINAL HERNIA. |  | How many times operated on. | Number of Needles used. | Size of the Plug. | RESULT. |  |  | Date of operation. | Date on which Truss was 1st applied after the operation. | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | Single. | Double. |  |  |  | Cured apparently. | Relieved. | Failed. |  |  |  |
| 1 | J. H., ... ... | 40 | Seaman ... | English... | Single left side | ... | Once | One needle ... | Middle sized | Cured | ... | ,, | 26th July, 1860 | 31st Aug., 1860 | In two cases the operation has proved unsuccessful. In 4 out of 12 cases, the benefit was partial, *i.e.* the Hernia was rendered controllable, the ring much diminished, and the Intestine protruding only on exertion being made. No bad symptom has in any case occurred. In one European only T. W., was there any amount of sloughing where the needles perforated the skin. The successful cases were kept as long in Hospital and put to the most severe tests possible. But I have seen only one of them, an European since, he returned after about 5 months perfectly cured. One case T. W. returned as relieved is still under treatment, but the case promises to terminate favourably. |
| 2 | Madhub, ... | 45 | Shopkeeper | Hindoo... | Single right side | ... | Twice | do. ... | do. ... | do. | ... | ,, | 31st Aug., 1860 | 15th Oct., 1860 |  |
| 3 | Bhicary Doss, ... | 30 | Cooly ... | do. ... | do. ... | ... | Once | do. ... | do. ... | ... | Relieved | ,, | 4th Sept., 1860 | 27th Oct., 1860 |  |
| 4 | C. E. S., ... | 20 | Seaman ... | American | do. ... | ... | do. | do. ... | do. ... | Cured | ... | ,, | 12th Sept., 1860 | 28th Oct., 1860 |  |
| 5 | Modhoo Soodun, | 50 | None ... | Hindoo... | do. ... | ... | do. | do. ... | do. ... | do. | ... | ,, | 25th Sept., 1860 | 15th Nov., 1860 |  |
| 6 | P. T., ... ... | 30 | Seaman ... | English... | do. ... | ... | do. | Three needles | Largest plug | ... | Relieved | ,, | 2nd Oct., 1860 | 16th Dec., 1860 |  |
| 7 | Muckhoo, ... | 40 | Washerman | Hindoo... | do. ... | ... | do. | Two needles | Middle sized | ... | ... | Failed | 17th April, 1861 | ... |  |
| 8 | M. D., ... ... | 40 | Cook ... | Portuguese | do. ... | ... | do. | do. ... | Largest plug | Cured | ... | ,, | 6th May, 1861 | ... |  |
| 9 | T. T., ... ... | 21 | Seaman ... | Bermudian | do. ... | ... | do. | One needle ... | Middle sized | do. | ... | ,, | 18th June, 1861 | 19th July, 1861 |  |
| 10 | A. K., ... ... | 45 | Seaman ... | Dutch ... | do. ... | ... | do. | Two needles | do. ... | ... | Relieved | ,, | 5th July, 1861 | 4th Aug., 1861 |  |
| 11 | Chunder Mohun, | 40 | Cooly ... | Hindoo ... | do. ... | ... | do. | do. ... | do. ... | ... | ... | Failed | 9th July, 1861 | ... |  |
| 12 | T. W., ... ... | 40 | Seaman ... | English... | Single left side | ... | do. | do. ... | Largest plug | ... | Relieved | ,, | 15th July, 1861 | 13th Sept., 1861 |  |

## *Statistics of Oblique Inguinal Hernia, from February* 1860 *to August.* 1861.

|  | Europeans. | Americans. | Natives. | Total. |
|---|---|---|---|---|
| Apparently cured ... ... ... ... ... | 3 | 1 | 2 | 6 |
| Benefited ... ... ... ... ... ... ... | 3 | 0 | 1 | 4 |
| Failed ... ... ... ... ... ... ... | 0 | 0 | 2 | 2 |
| Total cases operated on ... ... ... ... ... |  |  |  | 12. |

MEDICAL COLLEGE HOSPITAL,
14*th September*, 1861.

KASSEE CHUNDER DUTT,
*House Surgeon.*

# III.—ON REPRODUCTION AND REPAIR OF BONE IN NECROSIS AND AFTER LOSS OF SUBSTANCE FROM ACCIDENT OR OPERATION.

This subject is well illustrated in the two cases, abstracts of which, I append to these remarks. The first is an excellent example of reproduction of bone, chiefly by the periosteum, in a case of Necrosis resulting from compound fracture, where although the bone perished to the extent of four inches, the periosteum retained its vitality, and became the source of repair to the full extent in length and thickness of the lost bone. The second case, also one of compound fracture of the bones of the leg, in which it was found necessary to remove four inches of the Tibia on account of the injury inflicted on the periosteum, medullary membrane and substance of the bone itself, by contact with the ground, is a good example of the mode by which bone is repaired in open fractures, and the extent to which the loss of substance is replaced; the material for repair being supplied not to the same extent as in the former case by the periosteum, for that part of the membrane corresponding to the injured bone was lost with the bone, but from the separated ends of the bones with their investing periosteum, the medullary membrane and the surrounding tissues. It illustrates beautifully the gradual formation of the ossific matter and the slow process by which perfect consolidation is effected, in contradistinction to the quicker mode of repair in simple subcutaneous fractures.

It is exceedingly interesting not only in a pathological, but surgical point of view, for it proves that a large part of the shaft of the bone may be removed in these accidents, and that yet subsequent union and perfect consolidation may result.

The gradual approximation (by spontaneous muscular contraction) of the ends of the divided bone, the removal by absorption of the intervening muscle and the gradual closing in of the wound by granulation, the subsequent flexibility and slow ossification of the new material are all points of interest in this case. The exact length of new bone formed is uncertain, but it cannot have been more than half an inch to an inch, as the leg is fully three inches shorter than the other. It bears out what has been stated by professor Syme that where the entire circumference of the bone with the periosteum is removed, it is not to be expected that more than an inch of new bone will be replaced, whereas in the case of the periosteum remaining there is no limit to the amount of bone that may be reformed. The first case is a good example of this, and indeed we have daily illustrations of it in ordinary cases of necrosis, where the new bone is deposited around the old shaft which remains as a sequestrum. In these cases of chronic disease it is not so strikingly illustrated as in those of acute necrosis in which the bone perishes at once, leaving the periosteum uninjured and as yet not having commenced to form new bone. Occasional illustrations of this are found in this country, where from the abuse of mercury, the lower jaw perishes from acute necrosis, leaving the periosteum so far uninvolved that it rapidly forms a new bony arch moulded as it were on the exterior of the old bone; such a case, some time ago, I recorded in the Indian Annals.

The importance of the part taken by the periosteum in the repair of fractures and the reproduction of the shaft of the bone in necrosis, or loss from other causes, was long ago clearly pointed out in Mr Syme's experiments, published in the Transactions of the Surgical Society Edin. Vol : XIV 1827, and also by Sir A, Cooper, when it was clearly demonstrated that to the periosteum is due the power chiefly of forming new bone, and independently of any assistance from the old one. That the medullary membrane, the vascular tissue of the neighbouring ends of the divided bone also may contribute, there can be no doubt, inasmuch as they are mere continuations of the periosteum within the osseous tissue, but the practical issue of the subject is this, that in any case of loss of bone from injury or necrosis, if the periosteum be removed with the entire circumference of the bone beyond the extent of ½ to 1 inch, it is not to be expected that bony repair will result, unless the ends of the limb be brought into apposition, either by art, or by the efforts of nature, as in the case here recorded, by muscular contraction. Whereas if the periosteum remain even in part, though several inches of the bony shaft should have perished, yet that it is capable of regenerating an entire shaft without loss of length, and that without aid from the old bone which may have rapidly perished by acute necrosis, or have been removed as in the case appended.

Both the points are forcibly illustrated in Mr. Syme's experiments, I think they are confirmed by the cases that I have here recorded, and which doubtless have many parallels in Indian Surgery.

## CASE No. 1.

*Reported by Baboo Kally Krishna Ghose.*

### *Previous History.*

Poran ætat 25, Hindu, states that 3 months ago—he fell from a tree to the ground; a height of 15 or 16 feet, on his elbow and fractured the right humerus at its lower third. The fracture was compound, but there was no protrusion of the bone. The edges of the wound were irregular. The fracture was transverse and the broken surfaces were somewhat irregular and rough. There was some bleeding from the wound at the time. He was put under the treatment of a native surgeon. The wound gradually healed, but sinuses remained and the patient presented himself at the hospital with the following symptoms :—

### *Present symptoms* (5*th June* 1861.)

Patient is a weak and emaciated young man. He has 3 sinuses in the right arm; one on the anterior aspect at its middle and the two others on the outer side at its lower third, all these sinuses communicate with the bone which is felt by the probe to be necrosed. It is moveable, rough and brittle to the touch. The walls of the sinuses are hard and cartilaginous, and bleed when roughly touched by the probe. There is a sanious discharge from them and the patient complains of great pain in the part. The fracture has not united. The arm is loose and useless. The elbow joint is partially anchylosed. Patient has no fever, his pulse is feeble, tongue clean and moist, bowels regular, appetite bad, sleep disturbed.

### *Treatment.*

On the day after his admission it was thought advisable to try to save the limb, by removing the necrosed pieces of bone. Accordingly he was put under the influence of chloroform. The operation was commenced by making an incision at the lower third of the arm ; the bones were taken out by means of a pair of forceps. One of the pieces was about 4 inches in length, another about 2½ inches, and a third little less than this, with a few small pieces : so that the entire circumference of that portion of the humerus (being about 4 inches in length) was removed, denuded of periosteum. There was some bleeding after the operation which was soon stopped however by pressure. Silver sutures and cold water dressing were applied to the incision; ʒss. of tinct opii was ordered at bedtime. The next day that is on the 7th June there was no bleeding, no discharge from the wound, no fever, the pulse was fair, tongue clean and moist and bowels regular; the dressing was continued. On the 10th June there was some discharge from the wound, no fever, and the bowels had been opened freely the day before by a dose of castor oil, water dressing was continued and an opiate at bed time. On the 14th June he had slight diarrhœa, the wound was un-healthy and irritable, and there was much discharge from it, no fever; dressing continued and opium gr. i was ordered to be given every 4 hours. On the 20th, patient was reported to have had slight fever the night before, the wound was granulating and contracting, very little discharge from the sinuses. Dressing and medicine were continued and quinine mixture of gr. iij to ℥i was ordered thrice daily. On the 25th, the wound was covered with rich florid granulations, and had contracted considerably, there was much discharge from the sinuses, patient had no fever. Dressing and medicines were continued, and opiate at bed time as usual.

26th. The wound cicatrizing; still much discharge from the sinuses, the arm loose, but exudation is filling the gap left by the bone; water dressing continued; a splint and bandage was ordered to be tied round the arm in order to keep it at rest. On the 6th of July the arm had become a little firmer than before, though still loose and flexible; still much sanious discharge from the sinuses, and the wound closing up; medicine and dressing continued. On the 18th of July, the arm had become much firmer than before though still flexible, the wound had entirely closed, and but very little discharge from the sinuses. On the 28th it was seen that the bond of union had consolidated in the arm which was becoming firmer and harder than formerly though not yet perfectly firm. The patient had improved in general health. The dressing was continued and he waso rdered cod-liver oil ℥ss twice daily, and opium gr. i every 6 hours.

On the 7th of August 1861, the sinuses had entirely closed, the arm was much firmer than before, patient felt no pain in moving the limb, but the elbow joint had become anchylosed, no fever, bowels regular and appetite good; dressing and medicine continued. On the 19th, starch bandage was ordered to be put on the arm which had become much firmer and stronger than before. Tinct. Ferri muriat: m xv was ordered thrice daily, the starch bandage was continued till the

8th of September 1861, when it was taken off. The arm had by this time become almost perfectly consolidated, no shortening had taken place in it, but the callus or new bone that had formed was somewhat rough and irregular. Patient can now move his elbow partially, he has little power over his wrist on account of long disease, the hand remains always in a fixed position. Galvanism is now applied daily to the arm and the patient has been ordered to use it slowly and gently in grasping or lifting up small objects. He has now gained flesh and strength, and his general health is much improved.

He was discharged a few days later, the arm perfectly consolidated and not shortened. Exercise has restored to a great extent motion in the elbow joint, and the wasted muscles of the forearm are regaining their strength.

This case illustrates the power nature possesses of repairing loss of bone when the periosteum is left, here the bone had perished, but its investing membrane remained, and was the chief source of the subsequent repair to the extent of fully four inches of the entire thickness of the shaft of the bone. In this instance when the necrosed portions were removed no attempt at repair had commenced. The new bone was subsequently formed, and was not therefore moulded on the old, thicker and irregular, perforated by cloacæ, but had the shape and magnitude of the bone it replaced.

During the treatment no attempt was made to approximate the ends; had the entire thickness of the bone with the periosteum been removed, such attempt would have been necessary as without the periosteum, repair though it might be effected to the extent of ½ an inch or so could never have resulted as in the present case.

---

## CASE No. 2.

An English gentleman aged about 36 years, of robust frame and healthy constitution, who had been some years in India, was thrown violently from his horse on the 9th of July 1859, and in the fall received a severe compound fracture of the left leg at about the middle. The tibia was protruding two inches or more in front, the fibula an inch through the inner side of the leg. He had lost little blood. I saw him an hour after the accident. On examination it was found that the upper extremity of the fractured portion of the tibia which was protruding through a lacerated wound (out of which muscle also was bulging) had been fractured in an oblique and spiculated manner, it had entered the ground, the medullary cavity was stuffed with earth, the bone was split to a considerable extent, and the periosteum was completely stripped and chafed off the bone. The other fractured end was spiculated also, the fibula protruded with a sharpened upper point through the muscles of the calf. He was calm and collected, apparently not suffering very great pain. He was placed under chloroform and the wound examined. From the great injury the upper part of the bone had sustained, considering that the medullary membrane as well as the periosteum was injured, the bone itself split, scraped and denuded of periosteum, it was deemed desirable that up to the extent of the fissure, and to a little beyond it, the entire thickness of the bone should be removed. To effect this it was necessary to enlarge the wound somewhat upwards, the bone was then removed with a saw; the lower end being also comminuted and irregular, was sawn off.

About half an inch of the protruding portion of the fibula, being also injured was removed, the lower end was embedded in the muscles and could not be felt. During the operation a large arterial branch was wounded, it was ligatured and gave no further trouble, cold applications were then laid on the wound. The limb was placed on a McIntyre's splint.

The divided ends of the bone remained separate, they could not be brought together, the slightest attempt to approximate them was attended with great pain and hemorrhage. A sedative draught was given and he passed the night pretty well, there was no return of hemorrhage.

The cut ends of the bone came gradually into apposition in about three weeks, and apparently all intervening muscle was by that time absorbed, for the sensation of grating of the ends of the bone was felt at times and caused annoyance. This to a certain extent I found it impossible to prevent by any mechanical aid, it gradually ceased and towards the end of August disappeared. By this time much exudation had taken place about the fracture forming a dense tumour on the front of the leg, union was evidently commencing though not as yet ossific. In the tenth week after the injury the limb was rolled in a starch bandage and taken off the splint. By the 22nd September the external wound had quite healed, but a small sinus remained over the fibula. An opening had been cut in the starch bandage to ascertain this. His general health continued at that time good, occasionally slightly feverish, the debility and slight constitutional disturbance consequent on the injury rapidly disappearing, he ate and slept well and was acquiring flesh. There had never been much suppuration, it is to be remarked. By October, three months after the accident, union became firmer, he now attempted to walk supported by assistants, went out for a drive and resumed his official duties. 9th November. Union gradually consolidating, he could bear his weight on the leg, and the jolting of the carriage now did not, as formerly, give him pain. In December he went out of town for change of air.

31st January. Returned much improved, leg getting stronger, though bony union was not complete. He could raise the foot to a horizontal position without aid, and started again immediately on another expedition into the country.

13th March. Returned, leg perfectly firm, able to walk and bear his weight on it. Limb stiffened and weak from disuse. Discharged cured—

The following points of interest suggest themselves in this case. *First*, that the removal of the pointed and roughened ends of the fractured bones with the loose pieces, saved the patient in all probability from exfoliation, suppuration and the necessity for subsequent incision to remove exfoliation, or evacuate collections of pus. It saved him the waste of prolonged purulent discharge, and the irritative fever that might have accompanied it.

*Second.* The removal of so large a quantity of the tibia (one bone only,) the gradual approximation of the divided ends, by muscular action; the pain that attended any attempt to bring the ends together, was no doubt chiefly due to the fibula which remained longer, than the divided tibia. The ends overlapped in time, united and became quite consolidated.

*Third.* That loss of periosteum does not of necessity involve even superficial exfoliation of the bone. The periosteum in this case was stripped off part of the bone left, and yet it granulated and closed in, covered with cicatrix tissue. *Fourth*, The slow and gradual consolidation of the union. At the end of the sixth month the leg was still slightly flexible, but so far consolidated that he could raise the foot from the bed by the muscular efforts of the limb alone, and without aid from the hands. Perfect consolidation took place, and he was discharged cured in 13th March 1860—248 days after the accident. In October 1861, more than 2 years after the accident he is well, and though slightly lame from the shortening, yet in all other respects the limb is as good as the other one.

There is still some thickening about the seat of the repaired fracture.

## IV.—SHORTENING OF THE LEG FROM INTERSTITIAL ABSORPTION OF THE NECK OF THE FEMUR, THE RESULT OF BRUISE ON THE HIP.

The accompanying cases of injury to the hip and consequent shortening of the limb are of sufficient interest to merit record, I therefore communicate them for publication in the "Indian Annals," with a few remarks upon the accident and its results.

This is an example of the pathological process referred to by Mr. Paget where he says (vide Lectures on Surgical Pathology, page 405) "Interstitial absorption the removal of parts "from within the very substance of the tissues, as distin-"guished from the removal by the ejection of particles from "the surface, of which I shall afterwards speak as occurring in "ulceration." And again, (page 406 *et sequ.*) "with these "changes in rheumatic bones we may also cite, as instances "of absorption during slow inflammation the changes which "Mr. Gulliver (Edin. Med. and Surgical Journal Vol. XLVI) "first described as apt to ensue after injuries about the tro-"chanter of the femur. In such cases, without any appear-"ance of ulcerative destruction, the head and neck of the fe-"mur becoming shortened, and the head assuming a peculiar "conical form. We might regard these effects as simple atro-"phy, if it were not that they are like the effects of the more "manifest inflammation in the rheumatic cases, and that the "existence of inflammation during life is often declared by the "abiding pain and other symptoms following the injury."

These then are cases of interstitial absorption of the osseous tissue depending upon slow inflammation following an injury, a bruise, about the great trochanter. They are clearly, from the previous history and condition of the person at the time of the accident not referable to chronic rheumatic arthritis, which might, had it been present, have accounted for the shortening of the limb. They are certainly not due to atrophy such as occurs in the decay of bones common to the later periods of life, and the symptoms at the time of, and subsequently to, the accident forbid one assigning fracture, intra or extra capsular, impacted or otherwise, as a cause. Whether the round ligament were ruptured or detached or not, I can-

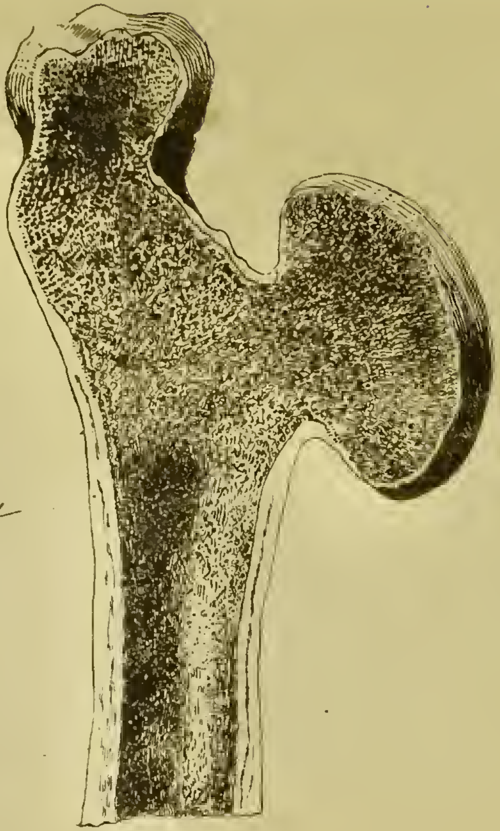

Fig. I.

From Paget

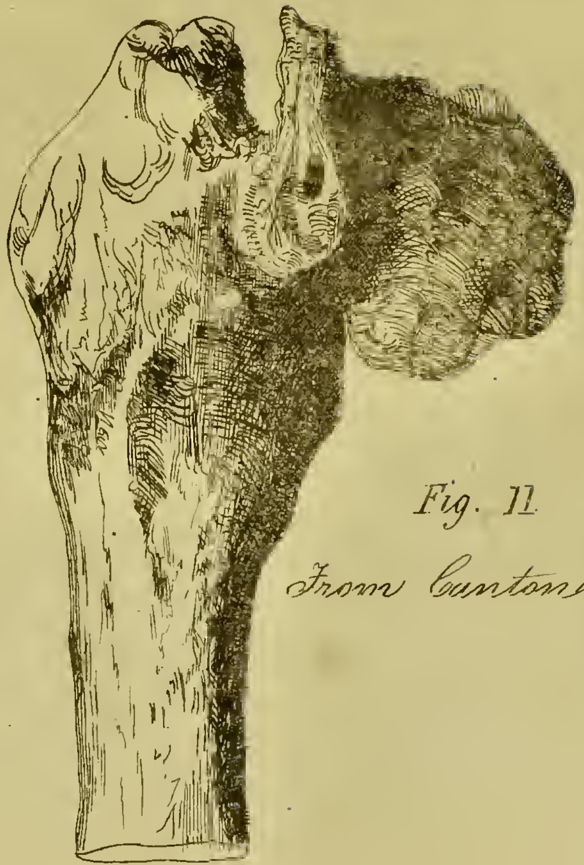

Fig. II.

From Canton.

not say, and I believe no other means than post mortem examination exist of ascertaining. The shortening was slowly progressive, and apparently ceased only with the pain and tenderness about the joint.

These cases are evidently of great interest and it is important that it should be clearly recognized that this interstitial absorption may follow a bruise of the hip, it is equally requisite that the surgeon should bear this in mind when he expresses his opinion on the ultimate consequence of such an accident. For though it may appear that the bruise is of no further importance than to require temporary rest and local applications, yet the comparatively trivial injury may be followed by permanent lameness, consequent disappointment to the patient and discredit to the surgeon, who may be probably supposed to have overlooked, and consequently maltreated, a fracture of the neck of the femur.

The Pathology of this process has been well described and explained by Messrs. Gulliver, Paget, Canton and others, yet it has hardly, I think, become so well known as its importance deserves, and therefore, though I have nothing to add to what has already been written, yet I think it is not out of place to call attention to the subject again, when the opportunity of illustrating it by cases in point occurs. It has been pointed out by Mr. Curling, that atrophy of the osseous tissue is liable to follow when the nutrient artery of the bone has been ruptured by violence, and also that all pathological inquiries which have been instituted in reference to the neck of the femur seem clearly to indicate two facts. First, that this portion of the bone is less capable of maintaining its vascularity than the other parts of the osseous system, and, secondly, that the universal decay of bone natural to advanced age, first commences in it.

Mr. Canton (vide Surgical and Pathological Observations, page 40) remarks upon this. "These interesting facts appear to "me to bear upon the subject under consideration, that if violence be applied in a particular direction, producing probably "rupture or contusion of some of the nutrient vessels passing "along the ligamentum teres for the head and cervix femoris, "the quantity of blood supplied to these parts being thereby "lessened, becomes still more inadequate to compete in the work "of deposition against the opposing absorption which is already "assuming the mastery, and the neck of the femur naturally "less capable of maintaining its vascularity than the other "parts of the osseous system falls a prey, so to speak, in the unequal struggle, and is slowly but surely destroyed; whilst the

" universal decay of bone co-incident with life's decline, here first " committing its ravages, adds a potent influence in determining " the issue." The remarks of Mr. Curling have reference especially to the neck of the femur in advanced life, where the natural decay of old age is accelerated by the effects of an injury; those of Mr. Canton to the addition of violence inflicted on the nutrient vessels. But in the cases before us, and in some recorded by other surgeons, there is neither concomitant constitutional disease, senile decay, or evidence of rupture of the round ligament to account for the interstitial absorption. They tend to confirm the view that a bruise alone by exciting slow inflammation in the head and neck of the femur is sufficient to induce it, and this for reasons peculiar to the part of the skeleton affected. Such absorption occurs not as the result of a simple bruise elsewhere, and when it follows injury to the cervix femoris it is analagous to that series of changes which is found to occur in other tissues as well as bone, as a consequence of defective nutrition, a variety of degeneration in short, a process in which more is removed than built up, the loss of balance being due to chronic inflammation, or to use the words of Mr. Paget. " Where that degeneration which would be " progressive in the healthy state, but which would then be un- " observed being constantly repaired, is still progressive in the " inflamed state of the part and is the more rapid because of " the suspension or impairment of the proper condition of " nutrition." And where the additional cause of rupture of the round ligament, or detachment of it from the head is super-added, with perhaps also fracture of the cotyloid cavity, the combination of causes is sufficient to account for the most acute symptom that may follow such an accident.

And yet the change may take place so insidiously as to have wanted any of the appreciable signs of inflammation. Cases have occurred in which the patients were able to walk immediately or a few days after the accident, the limb in the course of ten months or a year being found shortened a whole inch or even more. It appears then that these pathological changes may follow severe bruises of the hip at any period, early, or late in life. They may occur in persons free from any constitutional peculiarity and independent of the presence of incipient morbus coxarius, chronic rheumatic arthritis, or of the slow degenerative change peculiar to old age, and without rupture of any of the ligaments about the joint. They may take place slowly and insidiously, with little pain, or other evidence of inflammation, or with so much of pain, swelling and constitutional disturbance, as to indicate inflammatory action of a severe character. The shortening may commence soon after, or may be deferred for months after the accident. The two cases, I have here appended in illustration appear to be remarkably good examples of the disease in its simple and uncomplicated form: both young persons free from constitutional disease, in neither was the violence of the injury so great as to indicate that more than bruise of the hip had occurred. In each the shortening appears to have taken place insidiously, and at some distance of time after the accident. In each, the health was perfectly re-established though permanent lameness from shortening of the limb resulted. With reference to the pathological changes as seen after death that take place in the head and neck of the bone, I can only refer to those specimens that have been described by Messrs. Gulliver, Canton and others, in which the neck seems to be almost entirely removed, the head of the bone atrophied and flattened, or even conical in form. The bone itself firm yet spongy, the cartilage removed and eburnated bone to a great extent substituted, the ligamentum teres gone, the capsule thickened, and bone irregularly deposited around the joint. The changes are very similar to those which have taken place in chronic rheumatic arthritis.

The symptoms are well illustrated in the cases accompanying this sketch of the disease, and they may be taken as a description of the accident, generally.

I should add here that the short notice of the second case, that of the soldier, is from a memo: kindly supplied to me by Dr. Hardie of H. M. S. who showed me the patient and expressed his opinion that the history of the case was such as to confirm the view that shortening was due to interstitial absorption the result of the accident. The case was exceedingly interesting and illustrative. I regret that I am not in possession of a detailed account of it (owing to Dr. Hardie's absence from India), for had he been still in Calcutta, I am sure he would have afforded valuable information on the subject.

## CASE No. 1.

*(Reported by Báboo Brijoy Gobind Mookerjea, Dresser.)*

A young female, Æt. 20, by occupation a weaver, was brought into the Medical College Hospital on the 22nd of May, 1861. She says, that as she was going down the stairs of a bathing Ghât, she missed her footing and fell on the steps, which severely bruised her right hip. Immediately after, she went home on foot, being supported by two companions, who chanced to be present at the time when the accident happened. She was in the enjoyment of perfect health before, and at the time of the accident; she came for admission four days after, during which time she had been applying native medicine. Her right thigh was much swollen, without any signs of general affection of the system, she herself could not at the time determine the exact seat of the injury, but merely complained of acute pain about the hip. Her bowels were said to be regular and appetite good. On attempting to examine her leg, the least movement of the joint, aggravated the pain, which she said was of a sharp shooting character, extending down the inner side of the thigh to the knee, increased at night, and by motion of the limb.

Her right lower extremity, was then found to be the same length as the other. She complained of general soreness, which she said obliged her to keep in bed, also of pain in the sides of the knee joint, which was, however, relieved soon after. There was neither crepitus, preternatural mobility of the limb about the joint, nor shortening nor eversion of the foot. A few days after a slight crepitant sensation was thought to be felt in the right hip joint, and a long splint and pad were put on, these were however removed shortly after the pain in the hip joint having abated. About the latter end of August, the patient was much improved in health and able to go out of the ward, with the aid of a stick. Shortly after, when endeavouring to move about, without the stick, it was observed that the right leg was shorter than its fellow, occasioning her to limp in walking. The amount of shortening of the right leg from the anterior superior spine of the ilium to the heel, has been ascertained by measurement, to be nearly two inches, when she left the hospital, in other respects quite cured, in September 1861.

The shortening of the leg may be ascribed to simple degeneration consequent on severe injury to the great trochanter. The injury must have favoured the process of absorption, by causing slow inflammation. As to the existence of inflammation, it may be said that the patient complained of severe pain. The absorption and shortening of the neck of the bone was, therefore, due to the severe injury, which had probably impaired and suspended the proper conditions of nutrition, possibly by rupturing some of the nutrient vessels conveyed to the head of the bone by the round ligament, as well as by causing slow inflammation. In fact the nutrition of the head of the bone being interfered with, the process of degeneration must necessarily have occurred.

## CASE No. 2.

A man aged about 20, when running in the dark, fell into a pit on his right hip. With great pain and difficulty he walked back to the dwelling; was able to walk with difficulty for some time after. Was able after a short time, to do his duty as a Soldier, and also as a tailor in the regiment, sitting crossed legged in the latter employment. Nine months after he began to perceive a shortening of the limb, which when examined 12 months later, that is 21 months after the accident, is found to be shortened 1½ Inches, the limb and foot everted, when standing at ease the heel of the affected limb rests on the instep of the sound foot. In walking the pelvis is oblique, but he puts his whole foot to the ground. He can cross the leg and move it with moderate prudence in all directions. He is free from pain and feels only the inconvenience of lameness which renders him unfit for his Military duties.

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# CLINICAL OBSERVATIONS IN SURGERY.

## PART II.

By Dr. FAYRER.

PROFESSOR OF SURGERY AND SURGEON, MEDICAL COLLEGE HOSPITAL.

1863.

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# CLINICAL OBSERVATIONS IN SURGERY.

By Dr. Fayrer.

PROFESSOR OF SURGERY AND SURGEON, MEDICAL COLLEGE HOSPITAL.

## V.—FRACTURE OF THE THIGH BONE.

I have recently treated fractures of the femur on the principles laid down by Professor Syme rest, without forcible extension. The results, of the following cases, satisfy me that the method is a good one.

It will be observed that in fracture of different parts of the shaft of the femur it has been successful, and I am satisfied that in aged persons, who are often quite intolerant of the ordinary method by continuous extension, it has the great advantage of not causing so much restlessness and irritation; complications which not unfrequently frustrate all attempts at the ordinary mode of treatment, render the use of the double inclined plane, or of short splints, necessary, and result in considerable shortening and lameness. In fractures of the upper third, and through the trochanters, it is difficult indeed, under any circumstances, to prevent some shortening, but of the shaft, at the middle or lower thirds, with moderate care, there is less probability of it; and I have found that in all the cases here mentioned, it was so trifling, as not to cause lameness, except in the case of one old woman who was very restless, was treated part of the time by the ordinary method of extension, and had the additional complication of a fractured collar-bone to enhance the difficulty of treating her any how, satisfactorily. The method to which I allude, is that described by Mr. Syme in his recent work on Clinical Surgery; it consists of a long thigh splint extending from the axilla to below the heel. To one end of this splint the foot is secured by a few turns of a roller, the fracture having been previously adjusted, Chloroform aiding in the reduction if requisite, and an inner and outer thigh splint having been applied. These short splints should reach from above the trochanter, and from the perineum, to below the condyles of the knee.

These splints having been firmly adjusted and secured by bandages, or loops of tape, the long splint is to be applied to the thigh and secured by a sheet which has been previously rolled twice or thrice round the splint and pad, the sheet, enveloping the limb and the splint, is then to be stitched or secured by pins. A perineal pad and bandage, just tense enough to steady the head of the splint, is then applied; and a turn or two of a roller, round the head of the splint and the trunk, keeps all in position.

The limb is, by this application, kept at perfect rest, the muscles are quiescent, and the fractured ends kept steadily in apposition; union goes on satisfactorily and no tension is exerted; the patient consequently suffers much less inconvenience and pain than under the usual mode of treatment by extension with the long splint and perineal pad and bandage. In aged and infirm persons, I invariably caution the House Surgeons and dressers to be on the watch for delirium or restlessness, symptoms, liable to come on at night, in such cases, and which, if the tension be not removed immediately, may terminate fatally. As this is due, I believe, chiefly to the continued extension, I cannot avoid the conclusion that in this respect, as in others, the principle I am advocating is a most advantageous one.

The rationale of it is clearly laid down by Professor Syme and is simple enough. Perfect rest of the limb, its muscles, joints and fractured bone, thus obviating tension, or movement of the fracture, which would give rise to irritation of its muscular coverings, and consequent contraction of the limb.

The long splint is the same as that in ordinary use, about 3½ inches broad, ½ an inch thick and long enough to extend from the axilla to the heel, and a little beyond it, the projecting portion being notched to receive the turns of the roller, by which the foot is secured. An ordinary Hospital sheet or table cloth folded round the splint twice or thrice, and then having the upper corner turned down, leaving sufficient to envelope the limb once; with a couple of thigh splints, pads and a roller are all that is required; with these judiciously applied, fractures of the thigh, in any part of its course, may be treated most effectively, and with less trouble, to patient and Surgeon, than by the ordinary apparatus.

## CASE No. 1.

Ameen Oodeen æt. 15, a healthy looking boy, was admitted in the first Surgeon's ward of the College Hospital on the 30th of December 1861, with a simple transverse fracture of the middle of the left femur. On admission, a long splint and a sheet according to Mr. Syme's method, with two thigh splints, were applied instead of the usual rollers. The perineal band was applied merely to keep the head of the splint steady, not with the view of keeping up extension of the limb. Within the course of five weeks the sheet was readjusted twice. In the 6th week the splint was removed, but the fracture was found not to be consolidated, the splint and sheet were reapplied and kept for a period of a fortnight longer; after which, being removed, the fracture was found firmly united, the limb was not shortened.

Union in this case was slow. He was about 58 days on the splint.

## CASE No. 2.

An old woman named Poorno, was admitted into the College Hospital on the 1st of January 1862, with a simple fracture of the left femur, external to the capsule, close to the trochanters. The limb was at first put up with a long splint and the usual rollers. But in the 3rd week the sheet bandage and splint were applied. On the 9th February, the splint was removed, and the fracture was found firmly united, but the limb was found shortened less than an inch, and there was very slight lameness. The right clavicle was fractured also, adding to the difficulty of treating the fracture of the limb; both fractures united firmly. The patient was discharged cured on the 6th March 1862.

On the splint 40 days.

## CASE No. 3.

Anna Baptist, a woman æt. 25, was admitted in the College Hospital with a simple fracture of the left femur at its upper third, below the trochanters, on the 22nd January 1862.

A long splint and sheet, with two thigh splints were applied, they were kept on until the 32nd day, when being removed, the fracture was found firmly united. She left the Hospital quite cured on the 27th February 1862, free from lameness, beyond that of weakness of the limb.

On the splint 32 days.

## CASE No. 4.

Doorga Money, an old woman, æt. 64, was admitted into the College Hospital on the 7th February 1862, with a simple fracture of the right femur at its upper third below the trochanters. On admission, the sheet bandage, with two short thigh splints, was applied, she was restless, and the splint and sheet were readjusted four or five times during her stay in the Hospital. On the 16th March splints being removed, the fracture was found firmly united. The limb not shortened, but slightly curved outwards. She left the Hospital quite cured on the 5th April 1862.

On the splint 37 days.

## CASE No. 5.

Bam Chand, a strong and healthy looking woman, æt. 36, was admitted into the College Hospital on the 19th February 1862, with simple fracture of the right femur, a little above its middle. A long splint and a sheet with two short thigh splints were applied. The splint and sheet were readjusted several times as she was very restless. On the 17th March the splint was removed and the fracture was found united, but not firmly. The splint was re-applied immediately, and she was discharged perfectly cured on the 4th April, the splint having been removed 3 or 4 days previously, there was no lameness.

42 days on the splint.

## CASE No. 6.

Gunga Ram, a healthy young Hindoo, æt. 20, admitted on 21st March, with simple fracture of right femur at the middle. The accident caused by rolling of his cot when asleep.

He fractured the same bone some time ago, and left the Hospital cured, though with a weakened limb, about three months ago.

He was put up on the sheet and long splint as in the other cases.

30th April. Splint and sheet removed, bone perfectly firmly united, not the least shortening. He was on the splint 41 days, but from the perfect firmness of the union, it had no doubt been completed some time before the splint was removed.

## CASE No. 7.

A healthy muscular Hindoo, æt. 28, admitted on the 28th March 1862, with fracture of the right thigh, and right forearm near the wrist, caused by falling from the roof of a house, a few hours before admission. The thigh much shortened, muscles firmly contracted Put him under Chloroform, reduced the fracture, and placed the thigh at rest with the sheet and splint. The arm on a pistol shaped splint.—The thigh bone retained its position without trouble; he remained perfectly free from pain, insisting that neither leg nor arm were broken; and was discharged cured, and free from lameness or distortion, on the 30th April.

This is a most illustrative example of the advantage of the mode of treatment, one, which, had the old method of extension been applied, would have given rise to much trouble and difficulty.

The muscles were placed at rest, the fracture being reduced and kept in a state of perfect quiescence by the splint and sheet, there was no further muscular contraction; but perfect freedom from all pain or uneasiness.

There was not the slightest extension kept up from the perineum from the commencement of the treatment.

The splint was removed from the forearm on the 4th April and perfect union found to have taken place.

7 days.

The long splint was removed from the thigh on the 23rd April, perfect union had occurred, he was, on the 25th April, walking about with the aid of a stick. 26 days.

This is a good example of rapid union in both limbs. With reference to the nature of the union, I have remarked on it in another place, when describing these forms of union in fractures generally.

On the splint 27 days.

## CASE No. 8.

A little boy, Mungloo, 3½ years old, admitted on 8th March, with fracture of the right thigh, caused by being knocked down by a cart; bone broken about the middle. Placed on a long splint, limb enveloped in a towel instead of a sheet.

He had no unfavourable symptom except a slight sore on the inner side of the knee from pressure of the inner thigh splint. The splint and towel were removed on the 24th March, but union not being quite firm, they were reapplied. Removed finally on the 29th March, when he was found to be quite well, except the sore on the knee which was healing rapidly.

No shortening, no lameness. He remained in Hospital for the sore on his knee for a few days. Discharged on the 15th April.

On the splint 22 days.

## VI.—FRACTURE OF THE LEG TREATED BY APPLICATION OF PLASTER OF PARIS SPLINT.

This mode of treating fractures is, I believe, common in Paris, and especially in the practice of Mr. Maisonneuve. I have tried it recently in a case of simple fracture of the leg, and it has answered well. It is probable that the result might not always be so satisfactory as in this case. In the event of much contusion and swelling attending the accident, it would not, at the outset, be applicable, or if applied, it might require to be removed or loosened. It appears to me to obtain the great desiderata in the treatment of fracture, perfect freedom from muscular contraction and consequent rest of the fractured ends of the bone; an object difficult to attain with any of the ordinary mechanical appliances in common use.

The mode of application is the following—strips of bandage cloth, folded longitudinally two or three times, are soaked in plaster of Paris, dissolved in a solution of Gum Arabic instead of water, in order to make it, more tenaceous when set; and then laid along the leg behind, in front, and on either side, passing under the sole of the foot; the fractured limb must be kept in position whilst these are drying. This, with plaster of Paris, does not take very long, though to tell the truth, it is somewhat tedious. You have thus, 4 splints, one on either side of the limb, these being made strong as needs be by the application of more plies of cloth and plaster, and then, round the whole, apply a circular roller soaked also in plaster, or if swelling be apprehended, the circular bandage may be dry, so that it can be removed at a moment's notice. It may be applied either at once or after a few days according to circumstances, in simple fracture, unattended with much violence to the soft parts, the sooner the better; in case of much contusion, it may be as well to wait for a few days until the swelling subside; the delay is of no consequence, as union does not commence for sometime after the accident.

It has the advantage of causing less restraint to the patient than the ordinary mode of treatment by MacIntyre's splint, the swinging cradle, or the simple side splints, and it has the additional advantage of not requiring change or readjustment, forming a perfectly solid durable case in which the limb remains at rest while union is progressing.

A Mahomedan boatman, Shekh Hessie, æt. 30, was admitted 17th March with a simple fracture of both bones of the leg. Some swelling and contusion resulted. He was put up on side splints at first, but a few days after he had the plaster of Paris bandage applied in the manner I have described. It formed a perfectly solid and immovable case, caused no pain or inconvenience, and with it he was able to move the limb freely from side to side.

The case was removed on the 9th April 1862, and union found to have taken place, but still, not being quite firm, a starch bandage was applied which was removed on the 22d April and firm union found to have resulted. I wish to call the attention of Surgeons to this mode of treatment, with the view of further testing its merits. It appears to me, that as a simple mode of treatment it would be very efficacious in cases where the patient might require to be moved soon after the accident. And even in compound Fracture, gun shot wounds, it might be useful, applied only longitudinally, thus leaving room for dressings, and space for yielding, should the parts swell. It requires a little care and practice in the manipulation; but this is easily acquired.

## VII.—RAPID UNION OF FRACTURES.

The processes by which fractures of bone and wounds of the soft tissues are united, are strictly analogous.

There is the material for repair, the process of union, the modelling and shaping of the uniting substance.

In the large majority of cases there is new material provided, an exudation, whether it be in soft tissue or bone, in the former it is developed through one or other of a variety of processes into fibrous tissue,—the cicatrix. In the latter, by analogous processes, into bone; though, under certain unfavorable conditions, falling short of ossification, it results in fibrous tissue—and a false joint.

These processes are illustrated in the various modes in which fractures unite, the period occupied in union, and also in the nature of the union itself, depending on whether it take place in simple subcutaneous, or in open, compound fractures.

The conditions which are to determine in any case, "the route of development towards bone that the reparative material will take, or in what measure the differences that may be observed are to be ascribed to the seat or nature of the injury, or to the condition of the patient have yet, says Mr. Paget, to be determined:" little more as yet can be done than point out the modes in which the ossification may be accomplished. These may be by ossification through perfect fibrous tissue, by ossification through fibrous tissue in the rudimental state, such being either nucleated cells or nucleated blastema; or through a cartilaginous or fibro-cartilaginous stage. Through any of these structures new bone may be formed, and the material in which they are developed is known as the callus. It is an exudation similar to that in which either the primary or secondary processes of adhesion are effected in the soft tissues. But, whether in the soft tissues or in bone, they require a more or less protracted period for their accomplishment. Some of them, (as in compound fractures) extending over months.

It is a question of Surgical interest, therefore, whether repair can take place in a shorter period than that occupied by the most favorable example of the processes alluded to, either in the simplest case of union by primary adhesion, in the soft tissues, or the more complex one of the organization of the new material connecting the fragments of a broken bone.

It is considered by many pathologists that such may be the case.

The term "immediate union" of Dr. Macartney, and adopted from him by Mr. Paget, is applied to the form of union in question. It corresponds to the process described by John Hunter as "union by the first intention," a term now applied to another form of healing through the medium of exuded lymph. It is union without inflammation and without the intervention of any new matter. It is, to quote Mr. Paget, "immediate, at once in respect of the absence of any intermediate substance placed between the wounded surfaces and in respect of the speed with which it is accomplished. Again, "Healing by immediate union consists in the simple conjoining or reunion of the wounded parts. No new material is formed to connect them; but being placed in contact and so maintained, they just merely stick together, and then become continuous."

Paget's Surg. Path. Vol. i, p. 194.

Holme's System of Surgery, Vol. i, p. 583.

The conditions essential to procure this process are uniform temperature, temperance, rest, perfect coaptation of the parts, no bleeding, and the complete absence of inflammation.

Examples of this mode of union are often seen in incised wounds, plastic operation on the face, and after the removal of tumours, where the surfaces having been brought, and retained, in close apposition, immediate union has taken place, if not in all, in great part of the wound, no trace of the line of union being perceptible after death.

Does an analogous mode of repair ever take place in the osseous tissue? Does a broken bone ever unite by immediate union?

It would appear that it does, Mr. Hornidge, in Holme's System of Surgery, says. "In a few cases immediate union occurs without the intervention of any new material." And Mr. Paget says, "when portions of bone

Holme's System of Surgery. Vol. i, p. 786.

are placed and held in exact opposition, they may be united without any new material being formed for their connection. A continuity of tissues and of blood vessels being restored, as in the case of healing by immediate union in soft parts. But this is rare, and has not yet been sufficiently studied."*

The following cases appear to support Mr. Paget's views, and difficult as it seems to comprehend how such union can take place without the intervention of any process of exudation, yet in this way only, can such cases as the following be satisfactorily explained.

Mr. Paget says nothing as to the intrinsic nature of the process, further than what I have already quoted.

" A continuity of tissues and blood vessels being restored as in the cases of immediate union in soft parts."

And we must conclude that the union is simply the result of the resumption of the ordinary process of nutrition, which has been temporarily suspended by the disruption of the molecular structure of the bone.

It is to be observed, in reference to union of fractures, that a process also occurs in some cases, which may give rise to the supposition that immediate union has occurred. I allude to the deposit of a thin layer of intermediate callus between, but not beyond, the broken extremities of the bone, and which like the thin film of adhesive matter uniting cut wounds in healthy persons, may take place very rapidly and with but very little initiatory inflammation. Such, very probably, happened in the fractured thigh mentioned in the following case.

## CASE No. 1.

A stout healthy young Hindoo Durwan, æt. 28 years, was admitted on the morning of the 28th March 1862, having fallen from a house about three hours previous to admission, fractured the right radius just above the joint, and the right femur about its middle. He was put under Chloroform and the fracture reduced. The arm being placed on a pistol shaped splint, and the thigh on the long splint and sheet.

The day after admission he said he was quite free from pain and asked to have the splints removed, as he said he had nothing the matter with him, and that his arm and leg were not broken. He remained quite free from pain, and on the 4th April I removed both splints to examine the fractures. I found that the radius had united firmly, that there was no pain; the hand could be moved freely, and was as strong as the other; in fact there was no trace of the fracture left. The thigh was also found to have united. He could raise his foot from the bed; but as it was not free from pain on moving, and as it seemed on manipulation to bend slightly at the seat of fracture, I put him up on the long splint as before. He was kept on this until 23d April, when the bone was found to be firmly united.

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* Paget's Surgical Path. Vol. i, p. 243.

In this case union in the radius appears to have been of the immediate nature described by Mr. Paget. Whilst that of the thigh was probably through the medium of a thin layer of exudation between the broken ends, a process compared by Mr. Paget to that of union by primary adhesion, in the following words: "when the fragments are placed in close apposition and correspondence, they may, I believe, be joined by immediate union; but if this do not happen a thin layer of reparative material is deposited between them; it does not in any direction, exceed the extent of the fracture; neither does it in more than a trivial degree, occupy the medullary canal; but being inlaid between the fragments, and there ossifying, it restores their continuity. The process may be compared with that of union by primary adhesion."

## CASE II.

Ram Mangie, a strong healthy looking man, æt. 40 years, was admitted into the College Hospital with compound, Pott's, facture of the right leg, on 21st January 1861. On admission, side splints with foot piece were applied, and the wound dressed with a piece of lint soaked in blood.

On the 4th morning he was found sitting up in bed with his feet on the ground; the wound was examined, and found to be healed.

On the sixth day he was seen standing, and had been walking on the injured limb. He was free from pain.

On the tenth day the splint was removed, and the fracture found to be united, but not deeming it prudent to trust to the firmness of union at so early a period, he was put up in a starched bandage for a fortnight, and on the 1st March was discharged quite cured.

If this be not a case of immediate union, it is certainly one of that form in which a very thin layer of intermediate callus is produced, and which becoming rapidly organized, unites the broken bone just as the adhesive matter unites the margins of an ordinary incised wound.

I have seen other cases like these ; but I have not the records, one, particularly, I remember occurring, in a healthy native in the Hospital at Lucknow. The Tibia was fractured transversely and united with extraordinary rapidity. The splint being removed within a week, and perfect recovery taking place most rapidly. It puzzled me at the time, as well as the Sub-assistant Surgeon, to account for the very rapid union.

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## VIII.—FUNGUS OF THE TESTICLE.

This condition of the testicle is the result of chronic inflammation and suppuration in persons of unhealthy constitution, owing to a syphilitic or strumous diathesis; or the abuse of Mercury.

It has long ceased to be regarded as malignant disease, and is very amenable to treatment, if that be had recourse to at the proper time.

The simple operation of reducing the protruding portion of the gland, freeing it from constriction, whether of the aperture in the tunica albuginea, or of the cicatrix tissue surrounding it where it protrudes through the scrotum, is perfectly efficacious, not only in removing the fungoid growth, but in preserving the integrity of the glandular structure.

For this operation we are indebted to Professor Syme of Edinburgh, who considering the growth to be of the nature of exuberant granulation in the loose glandular structure of the testicle, infiltrated with inflammatory products, and subjected to the constriction of the margin of the opening through which it protrudes, in the fibrous tunica albuginea and integuments; thought that pressure, so effective in the treatment of similar conditions of inflammation elsewhere, and in the testicle itself under other circumstances, would, if applied properly, be equally effective here.

With this object in view, he released the protruding portion of the gland from constriction, and freeing the integument sufficiently to allow it to be brought over the fungoid growth, united the margins of the scrotum, over the tumour, retaining them in apposition by sutures of silk, or silver.

The results were most satisfactory, and the object was attained speedily and with perfect preservation of the structure of the testicle.

This is a triumph of conservative Surgery, for not only is the patient more readily freed from a tedious and disgusting disease by this, than by the former methods of treatment such as shaving off the fungus, pressure, astringent applications, and ultimately castration; but he is so, preserving the testicle. The operation is simple, but requires care to ensure success.

A free incision on either side of the protrusion through the integument until the tunica albuginea is exposed, as known by the pearly blueish white appearance it presents. The flap thus formed on either side to be reflected, until all adhesion and constriction be removed from around the neck of the protrusion. The thickened edges of the adherent skin next should be cut away from about the protrusion, and the opening in the tunica albuginea, through which the glandular structure thickened, everted, granular, and infiltrated with inflammatory lymph should be widened. The tumour should then be reduced by drawing the pared edges of the divided scrotum over it, and uniting these with a few wire sutures, cold wet lint should then be applied, and when adhesion has occurred, or in a few days, they may be removed.

I have seldom seen union take place by adhesion; suppuration, and granulation have been the most frequent events, but the result was equally satisfactory, the wound ultimately closing perfectly and leaving only a thin white line of depressed cicatrix.

The object of the operation in fact appears to me to be more to remove the constriction round the neck of the fungus, than to cover it over directly, for if that be done, and the integument be thoroughly detached from about it, the scrotum will of itself, by the ordinary process of granulation and cicatrization close in and unite over the fungoid growth; the pressure causing absorption of all inflammatory products effused into the stroma of the testicle.

I append notes of some cases that have occurred in my wards, in which this mode of treatment has been adopted with complete success.

I am aware that there is nothing new, except the cases, in what I here record; the principles and method of operating were long ago pointed out in Professor Syme's works; but it is satisfactory to have the opportunity of placing on record facts confirmative of the high reputation this operation has justly attained.

## CASE No. 1.

J. W., an East Indian, æt. 22, was admitted into the Medical College Hospital with fungoid growth and protrusion of his right testicle, on the 20th May 1859. He was operated on (according to Mr. Syme's method) on the 22nd May 1859. The wound partly closed by first intention, partly by granulation, within the course of a fortnight. He was discharged cured on the 9th June 1859.

## CASE No. 2.

Edbary, a Mussulman, æt. 60, was admitted into the College Hospital on the 9th May 1859, with fungoid protrusion of his right testicle. The operation for Hernia testis was preformed on the 6th June 1859. The wound closed by granulation within the course of 3 weeks. He left the Hospital quite cured on the 27th June 1859.

## CASE No. 3.

J. M., an European sailor, æt. 56, was admitted with fungoid growth and protrusion of his left testicle, into the College Hospital on the 28th January 1860. He was operated on the 29th February 1860. The wound closed by granulation within the course of 4 weeks. He was discharged cured on the 25th March 1860.

## CASE No. 4.

Chundee Churn, a Hindoo cultivator, came into the College Hospital with fungoid growth and protrusion of his left testicle on the 1st August 1860. He was operated on the 4th August 1860. The wound closed by the process of granulation. He left the Hospital on the 21st August perfectly cured.

## CASE No. 5.

Hurrish Chunder, a Hindoo native vaccinator, was admitted into the College Hospital on the 2nd August 1861, with fungoid growth of his left testicle. The operation was performed on the day of admission. The wound healed by the process of granulation. He left the Hospital on the 15th November 1861, the wound granulating was subsequently seen nearly well. In this case the progress of union was retarded by incipient Elephantiasis and infiltration of the Scrotum.

## CASE No. 6.

Grish Chunder, a Hindoo milkman, æt. 35, was admitted into the Medical College Hospital on the 6th Jan. 1862, with fungoid protrusion of his right testicle. The operation was performed on the 7th Jan. 1862. The wound closed by granulation, and the patient left the Hospital quite cured on the 18th January 1862.

## CASE No. 7.

A Hindoo named Rajkisto Biswas, was placed under treatment for fungoid growth of his left testicle. He was operated on by Baboo Cassie Chunder Dutt, my House Surgeon, by the same method on the 7th September 1861. The wound partly closed by first intention, and partly by the process of granulation within the course of a fortnight. He was quite cured and discharged on the 21st September.

## CASE No. 8.

W. S., æt. 40, a strong, hale, though strumous looking man, with fair complexion and blue eyes, was admitted into the College Hospital on the 24th March 1862, with a fluctuating swelling on the left side of his scrotum, the result of an injury inflicted by the handle of a scraper, while working on board his vessel two months before admission. On the 26th, he was tapped and about 4 or 5 ounces of dark coloured fluid drawn off. On the 29th, an incision was made through the fluctuating swelling on the left side of the scrotum. On opening the sac, layers of coagulated blood and fibrine were found, the testicle was also much enlarged and infiltrated with blood and fibrous matter. The blood and fibrine being removed, a poultice was applied. In a few days the testicle protruded in a fungoid condition and healthy granulations appeared. On the 14th April, Mr. Syme's operation for hernia testis was performed; the neck of the fungoid growth, or the constricted part, was freed, and the edges of the wound were brought in apposition, over the testicle, by sutures. The wound healed by granulation within the course of a fortnight, and the patient was discharged cured on the 10th May 1862. The testicle reduced to its natural size.

These were all good examples of fungoid growth of the testicle, the result of chronic inflammation and suppuration in persons of a strumous or otherwise cachectic diathesis. The protrusions varied from the size of a marble to that of a large walnut. The result was perfectly satisfactory in all the cases except No. 5, where the protrusion was large, of old standing, and the scrotum thickened and infiltrated partly by lymph and partly by Elephantiasis. Even in this, the condition was much improved, for the protrusion was entirely reduced, but the wound remained open for some time owing to the difficulty of cicatrization in the hardened infiltrated integument. When I last saw him, it was slowly closing in. In the other cases, (some I have seen since,) a thin white line of cicatrix, perfectly detached from the testicle, alone remained to indicate where the testicle had protruded. I found that, in all, the wound was ultimately closed by granulation. The margin of the wound though brought carefully together with wire sutures did not unite, or but partially united by adhesion, the result was not, however, the less satisfactory, for the cure was complete.

I attribute this want of disposition to unite by adhesion, to the almost universally diseased condition of the scrotum in the natives of India. In nearly all, it is preternaturally thickened, infiltrated or in an incipient condition of elephantiasis of the integument, or Hydrocele of the tunica vaginalis. Of the eight cases here recorded there were:—

| | | |
|---|---|---|
| | Europeans ... ... ... | 2 cured |
| | East Indian ... ... ... | 1 cured |
| Bengalie | Mahomedan ... ... ... | 1 cured |
| | Hindoo ... ... ... | 4 cured, one much relieved. |
| | Total cases ... | 8 |

## IX—ELEPHANTIASIS GENITALIS.

The accompanying tabular statement of cases of Hypertrophy of the coverings of the Genital organs is interesting. It shews the peculiar liability of the inhabitants of Bengal to the disease, and also how very amenable it is to surgical treatment.

It appears also to prove that the Hindoo is more liable, than the Mahomedan, to be affected.

The operation for removal of a scrotal tumour is formidable, and in very large outgrowths it is attended with danger of sinking from hæmorrhage or exhaustion, either on the table, or soon after the operation. The risk of fatal hæmorrhage is chiefly incurred in those large tumours where delay is caused by efforts being made to save the Genital organs. This, in some cases, it is tedious and difficult to effect, owing to the depth at which they are imbedded, or to the close adhesion of the testes and cords, especially where there is no hydrocele, to the surrounding tissues.

It therefore may become a question whether it is not better to sweep away the entire growth, after exposing the penis, and thus, at the sacrifice of the testes, avoid the risk of fatal hæmorrhage.

In none of the cases here recorded did it prove necessary to have recourse to this extreme measure. But in some of the larger tumours it was evident, that, in preserving the Genital organs, the powers of endurance were taxed to the utmost.

The mode of performing the operation is the following. A director is introduced into the sinus leading to the penis, and a longitudinal incision made on it down to the glans, by a few strokes of the scalpel, or it is laid open, at once, by introducing a catlin on the director and cutting outwards. This wound is separated, and the penis is dissected out, reflected, and held back on the abdomen. Incisions are then made down to the testes, which are also dissected out and reflected in a similar manner. Hydroceles, if present, are opened, and the tunicæ vaginales, if thickened, as they often are, cut away. The penis and testes being then carefully held out of the way, the tumour is separated from its attachments by a few decided strokes with a scalpel or with an amputating knife. Keeping close to the perineum, and carefully removing all the diseased integument.

The bleeding vessels must next be secured without loss of time; some of the larger arterial branches and venous sinuses are already under control of the assistants fingers.

From 10 to 20, 50 or 60 ligatures may be required, and the greatest care should be taken to secure every bleeding point, arterial or venous, by ligature, or troublesome hæmorrhage will occur when reaction sets in, and the patient becomes warm in bed. I have found no ill result from tying veins in this operation, and all bleeding points are accordingly ligatured; the possible chance of phlebitis being as nothing compared with the present risk of hæmorrhage. It is to be observed that the danger I speak of, does not refer to profuse bleeding from one or two large vessels, so much as to the continuous oozing from numerous small ones, divided at the same time.

To diminish the loss of blood as much as possible, the tumour should be elevated, and drained, as it were, for an hour or so before the operation. I have recently used an iron clamp to compress the neck of the tumour, and with it can materially control arterial hæmorrhage, though it appears rather to interfere with the rapidity of the operation. The wound closes by granulation; the process of cicatrization generally covers the testes within six weeks to two months from the date of the operation, but this depends to a great extent on their size, the thickness and length of the cords, and the quantity of sound integument left.

The condition of the patient after recovery is one of vast improvement on that before the operation, it is remarkable how little deformity is produced, the skin is drawn over the testes by granulation and cicatrization, and the penis becomes invested by a new integument of pliant cicatrix tissue, which has a tendency to approach more and more, in structure and appearance to the natural skin, the older it grows. In some cases, a covering can be obtained for the penis, by preserving a portion of the reflected prepuce, which not unfrequently remains unaffected in the midst of so much diseased structure. The advantage of doing so is, however, questionable, as it is liable to become œdematous and thickened subsequently.

In every case where I have had opportunity of making enquiry some time after the operation, it has appeared that the functions of the organs were perfectly restored.

As to the pathology of these outgrowths; they are the local expressions of a constitutional disorder, Elephantiasis,* and are simply exaggerations of the natural structures. White and yellow fibre, unstriped muscle of the dartos, skin and areolar tissue; the whole infiltrated with a quantity of jelly like albumino-serous fluid. They are concurrent in their growth, with repeated paroxysms of periodical fever, recurring in some cases once, in others, twice a month, and attributed by the Natives to lunar, as well as telluric and atmospheric influences. During these attacks of fever the tumour is always described as increasing in size, becoming hot, turgid, painful, sometimes fissured and exuding a sanious fluid. With the cessation of fever, there is cessations in growth by paroxysms, but each attack leaves the tumour somewhat larger than it found it. The fever having entirely disappeared, the tumour either ceases to grow at all, or it increases slowly and insidiously.

The scrotal tumour is occasionally accompanied by Elephantiasis in other parts of the body, or of the limbs. But in the majority of cases, that have come under my observation, it has been confined to the genital organs.

## CASE No. 1.

Nobo Coomar, Hindoo, æt. 35, was admitted into the College Hospital on the 18th July 1859, with a scrotal tumour weighing 5lbs. He was operated on, on the 8th August 1859, and discharged cured on the 25th December 1859.

## CASE No. 2.

Boly Chaund, Hindoo, æt. 39, was admitted into the College Hospital with Elephantiasis of the scrotum on the 16th October 1859. The tumour was 23lb and 3oz in weight. It was removed on the 18th October. He died on the 11th November 1859 from Pyæmia, on the 25th day after the operation.

## CASE No. 3.

Modhoo Soodun, Hindoo, æt. 36, was admitted into the College Hospital on the 12th October 1859 with a small scrotal and preputial tumour weighing 3℔. He was operated on, on the 18th October 1859, and discharged cured on the 12th December 1859.

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* Elephantiasis Arabum.
Bucnomia Tropica.
I use the ordinary conventional designation of this form of disease, in calling it Elephantiasis; it is not to be confounded with the true Elephantiasis, or Lepra Græcorum.

## CASE No. 4.

Beny Madhub, Hindoo, æt. 22, was admitted into the College Hospital on the 21st October 1859, with a scrotal tumour, the weight of which was 7℔s. and 8½oz. He was operated on, on the 25th October 1859, and discharged cured on the 4th February 1860.

## CASE No. 5.

Hurrish Chunder, Hindoo, æt. 23, was admitted into the College Hospital on the 28th October 1859, with a scrotal tumour weighing 8℔s. He was operated on, on the 5th November 1859. He died, on the 11th December 1859, from Pyæmia, on the 37th day after the operation. He had also Elephantiasis of the left leg and foot.

## CASE No. 6.

Nadiar Chund, Hindoo, æt. 36, was admitted into the College Hospital with a large scrotal tumour weighing 65℔s, on the 16th January 1860. He was operated on, on the 21st July 1860. He died about 3 hours after the operation from shock and slight hæmorrhage, which came on after he was put to bed.

## CASE No. 7.

Bireshur, Hindoo, æt. 36, was admitted into the College Hospital with Elephantiasis of the scrotum on the 27th January 1860. The weight of the tumour was 19lbs. He was operated on, on the 6th February 1860. The wound was healing very rapidly, when he had an attack of Pyæmia, from which he died on the 25th March, 7 weeks after the operation.

## CASE No. 8.

Mahipaul, Hindoo, æt. 40, was admitted into the College Hospital on the 14th September 1860, with a scrotal tumour weighing 18½lbs. He was operated on, on the 22nd September 1860, and discharged cured on the 12th November 1860.

## CASE No. 9.

Madhub Dey, Hindoo, a stout healthy looking man, æt. 37, was admitted into the College Hospital with a scrotal tumour, the weight of which was 37lbs. He was operated on, on the 18th December 1860, and discharged perfectly cured on the 31st January 1861.

## CASE No. 10.

Abdool Rahim, Mahomedan, æt. 32, was admitted into the College Hospital with a small scrotal tumour on the 20th January 1861. The weight of the tumour was 3lbs. He was operated on, on the 29th January 1861, and discharged cured on the 8th March 1861.

## CASE No. 11.

Hullodhur, Hindoo, æt. 39, was admited into the College Hospital with a large scrotal tumour on the 22nd February 1861. The weight of the tumour was 46lbs. He was operated on, on the 26th February 1861, and discharged cured on the 12th June 1861.

## CASE No. 12.

Sheik Mahomed, Mahomedan, æt. 32, was admitted into the College Hospital on the 26th July 1861, with a scrotal tumour weighing $12\frac{1}{2}$lbs. He was operated on, on the 6th August 1861, and discharged cured on the 11th November 1861.

## CASE No. 13.

Fallee, Mahomedan, æt. 36, was admitted into the College Hospital with Elephantiasis of the scrotum on the 26th July 1861. The weight of the tumour was $14\frac{1}{2}$lbs. He was operated on, on the 6th August 1861, and discharged perfectly cured on the 6th November 1861.

## CASE No. 14.

Dala Ram Paul, Hindoo, æt. 50, was admitted into the College Hospital on the 26th August 1861, with a scrotal tumour. (This tumour was partly preputial and partly scrotal.) There was incipient Elephantiasis of his right leg. The weight of the tumour was $9\frac{3}{4}$℔. He was operated on, on the 8th October 1861, and discharged cured on the 12th December 1861.

## CASE No. 15.

Bonomally, Hindoo, æt. 30, was admitted into the College Hospital on the 16th October 1861, with a small scrotal tumour weighing 2½℔. He was operated on, on the 19th October 1861. He died from surgical fever on the 25th October 1861.

## CASE No. 16.

Gholám Chunder, Hindoo, æt. 36, was admitted into the College Hospital on the 4th November 1861, with a scrotal tumour (preputial.) The weight of the tumour was 7℔s. He was operated on, on the 9th November 1861, and discharged perfectly cured on the 29th December 1861.

## CASE No. 17.

Bhogerut Shaha, Hindoo, æt. 45, was admitted into the College Hospital, with a scrotal tumour (preputial) on the 11th November 1861. The tumour was 12℔s. in weight. He was operated on, on the 16th November 1861, and discharged cured on the 5th February 1862.

## CASE No. 18.

Koylash Dass, Hindoo, æt. 26, was admitted into the College Hospital on the 2nd December 1861, with a small scrotal tumour weighing 2½℔. He was operated on, on the 14th December 1861, and discharged cured on the 7th February 1862.

## CASE No. 19.

Shumboo, a Hindoo, cultivator, æt. 40, was admitted into the College Hospital on the 11th December 1861, with a large scrotal tumour, weighing 59℔s and 9 ounces. He was operated on, on the 17th December 1861. He died of Pyæmia on the 5th January 1862.

## CASE No. 20.

Fakeer Chund, Hindoo, a healthy looking man æt. 37, was admitted into the College Hospital on the 11th December 1861, with a small scrotal tumour weighing 1½℔. He was operated on, on the 17th December 1861, and discharged cured on the 7th February 1862.

## CASE No. 21.

Ramoo, Hindoo, æt. 30, was admitted into the College Hospital on the 27th December 1861, with a scrotal tumour, the weight of which was 4½℔. He was operated on, on the 31st December 1861, and discharged cured on the 26th April 1862.

## CASE No. 22.

Damodur Dass, Hindoo, æt. 42, a healthy looking man, was admitted into the College Hospital on the 3rd January 1862, with a scrotal tumour weighing 4℔s. and 16oz. He was operated on, on the 3rd January, and discharged cured on 7th April 1862.

## CASE. No. 23.

Sook Nauth Dey, Hindoo, æt. 30, was admitted into the College Hospital on the 17th February 1862, with a scrotal tumour weighing 4½℔s. He was operated on, on the 20th February 1862, and discharged cured on 23d April 1862.

## CASE No. 24.

Sheik Shariut, Mahomedan, æt. 32, was admitted into the College Hospital on the 2nd March 1862, with a preputial tumour, and Elephantiasis of his right leg. The tumour was 16℔ and 3½oz. in weight. He was operated on, on the 11th March, and discharged cured on the 28th May 1862.

## CASE No. 25.

Nobo Coomar Dass, Hindoo, æt. 32, admitted 9th December 1861, operated on the 12th April 1862, weight of tumour 75¾lbs.

Discharged cured on 29th May 1862.

He was ill with fever and ulceration when admitted, and not in a fit state for operation before 12th April.

## CASE No. 26.

Mohesh Chunder Surma, an elderly Brahmin, æt. 45, was admitted into the 1st Surgeon's ward of the College Hospital on the 5th May 1862, with Elephantiasis of the scrotum of 6 years' standing. He was operated on, on the 10th May 1862, and was discharged cured on the 8th June 1862. The tumour was 19½lbs. in weight. In this case both Testes were diseased and therefore removed.

## CASE No. 27.

Roghoopathy Chatterjea, Hindoo, a healthy looking man æt. 30, was admitted into the College Hospital on the 12th May 1862, with an incipient scrotal tumour of two years' standing. It was 5 ounces in weight. He was operated on, on the 12th May, and discharged cured on the 14th June 1862.

## CASE No. 28.

Noga Ram, Hindoo, a stout looking man, æt. 21, was admitted into the College Hospital on the 12th May 1862, with a Tumour of the scrotum weighing 1lb 13½ oz. He was operated on, on the 12th May, and discharged cured on the 4th July1862.

*Abstract*

Of operations from July 1859 to May 1862.

| | No. | Death. | Pyæmia. | Shock. | Total. |
|---|---|---|---|---|---|
| Mahomedans .. | 4 | 0 | 0 | 0 | 0 |
| Hindoos ... ... | 24 | 6 | 5 | 1 | 0 |
| | 28 | 6 | 5 | 1 | 6 |

## X.—THE ECRASEUR.

I have for some time past been using the Ecraseur in removing certain morbid growths, and dividing deep and extensive fistulæ; where I was anxious, if possible, to spare the patient the loss of even the smallest quantity of blood.

I consider this instrument a most useful addition to the surgical armamentarium, and in cases like those in which I have used it, and of which I append a short abstract, I recommend its use. With chloroform, the patient is spared the pain which otherwise would be very severe. In one or two slight cases, where I have applied the chain, without the anæsthetic, the patients described the suffering as intense.

A caution to be observed in removing highly vascular growths is, that the handle of the instrument be moved slowly, intervals of from 2 to 20 seconds are needed, according to the vascularity of the structure of the tissue to be divided.

It is hardly necessary to add that the action of the chain in compressing and dividing the part to which it is applied, is similar to that of the teeth of an animal when it gnaws across the umbilical cord of its offspring. The bruising and irregular laceration of the coats of the vessels cause retraction within themselves, and their sheaths, and thus hæmorrhage is prevented. In certain tumours it may be well to divide the skin with a scalpel before applying the chain, but I have seen no such cases, and have found that it divided the skin as easily and well, as the other tissues.

In some cases the chain may, after the manner of the ligature, be passed through the base or neck of the morbid growth, and so divide it bit by bit as it were. Chains of various sizes are required, and for small objects, wire or even silk may be made to effect the purpose most satisfactorily. I have not employed this instrument in any operation of greater magnitude than those here recorded; but I have no doubt that it might be of extensive application, and I believe that the inventor, Mr. Chassaignac, and other French Surgeons, have substituted it for the knife in many operations of magnitude and importance, even amputations of the extremities.

I may add that the wound left by the application of the chain has not, in my experience, presented any difficulty or obstinacy in healing.

So far as I know, the Ecraseur is not by any means of universal application in this country, and I have reason, after enquiry, to think that the one now in use in the Medical College Hospital, May 1862,* is perhaps, with one exception, the only one in Calcutta.

I should be glad if this short notice of the Ecraseur were to contribute towards bringing a most useful instrument into more general use.

The cases in which I have used it with advantage are

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* 1st July. A supply of these instruments has been sent out to the Government Medical stores recently.

Polypus of the Rectum.
Deep Fistula in Ano.
Hæmorhoids.
Epithelial growths.
Condylomata.
Cancer of Penis.

and I feel satisfied that in nævus, cancer of the tongue, uterine, and other polypi, it might be, indeed I believe it has been, and is most beneficially applied.

The great advantage of the instrument is the bloodless character of its operations; but higher and greater advantages than this have been attributed to it. It is thought by some that the wounds it inflicts, from the peculiar mode in which the vessels are divided, are less liable than others to be followed by Pyæmia. Whether such be the case or not, my experience is not large enough to enable me to form an opinion, I am satisfied in the mean time, to have an instrument with which I can remove what must be taken away, without loss of blood.

## CASE No. 1.

A patient, about 45 years of age, of very weak and broken down constitution from former disease, and dissipated habits of life; and who had some years before, a deep fistula in ano divided; was freed from several rectal polypi and hæmorhhoidal tumours by aid of the Ecraseur.

To avoid loss of blood in his case was of the greatest importance owing to his enfeebled and anæmic condition. The removal of the polypi was effected, under chloroform without loss of blood; the result, so far as the local disease was concerned, was satisfactory.

## CASE No. 2.

Ramdhun, a man of feeble constitution, æt. 35, was admitted into the College Hospital on the 16th March 1860, with a deep and extensive Fistula in ano of 3 years' standing.

He was operated on, on the 17th March, with the Ecraseur; without losing any blood. He was discharged cured on the 1st May 1860.

## CASE No 3.

Sewjoog, æt. 35, a strong and healthy looking man, was admitted into the College Hospital, with a deep perineal fistula, on the 19th March 1860. The fistula was laid open with the Ecraseur on the 30th March (no blood was lost). He was discharged perfectly cured on the 1st April 1860.

## CASE No 4.

Deen Mahomed, a thin sickly looking man, æt. 26, was admitted into the Medical College Hospital on the 6th April 1860, with large syphilitic condylomata around the anus. These were removed by the Ecraseur on the 13th April. He was discharged cured on the 24th April 1860.

## CASE No 5.

Khoodee Ram, æt. 38, was admitted into the College Hospital, with fistula in ano, on the 22nd June 1860. He was a man of very weak constitution. The fistula was laid open by the Ecraseur on the 16th July 1860. He was discharged, cured on the 12th August 1860.

## CASE No 6.

J. G., a Jew, æt. 20. was admitted into the College Hospital on the 4th July 1860, with four fistulæ, deep and extensive, round the anus. He was operated on, on the 7th July with the Ecraseur, and left the Hospital quite cured on the 31st July 1860.

## CASE No 7.

Bahadoor, an unhealthy looking man, æt. 40, was admitted into the College Hospital with Fistula in ano, on the 3rd August 1860. He was operated on, on the 4th August, and discharged cured on the 24th August 1860.

## CASE No. 8.

Hurry, an elderly Musulman, æt. 32, was admitted into the

College Hospital with an Epithelial cancer of the penis (occupying the gland and prepuce) on the 22nd December 1861. The diseased parts involving the greater part of the penis, were removed by the Ecraseur on the 24th, without losing any blood. He was discharged cured on the 18th January 1862.

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## CASE No. 9.

Omur Chund, æt. 40, a man of weak constitution, was admitted into the College Hospital on the 25th December 1861, with a dendritic Epithelial growth on his left shoulder, on the spine of the scapula, occupying a space of about 4 inches in length and breath. This growth was removed by the Ecraseur on the 13th December. The bleeding was comparatively little, a few drops. He was discharged perfectly cured on the 20th January 1862.

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## CASE No. 10.

Bono Mally, an old man, æt. 64, was admitted in the College Hospital with an Epithelial cancer of the penis, occupying the gland and prepuce. The diseased parts were amputated by the Ecraseur on the 3rd March. He was discharged cured on the 3rd March 1862.

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## CASE No. 11.

L. C., æt. 35, was admitted in the College Hospital on the 24th February 1862, with large syphilitic condylomata around the anus. The condylomata were removed by the Ecraseur on the 16th March 1862, with favorable results.

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## XI—INJURY OF THE SPINE.

In a former report I recorded two cases of injury of the hip joint followed by interstitial absorption of the head and neck of the femur. The changes in these cases resulting in permanent lameness, from shortening of the limb, were due to injury inflicted by a heavy fall on the trochanter major, the violence being transmitted to the articulation through the head and neck of the bone. Violence and injury of a similar character appear to have caused similar pathological changes in the vertebræ, in the following case, by exciting slow inflammation in the bone.

The nature of the accident, the symptoms that followed, the abiding pain, the subsequent gradual alteration in the form of the spine, indicate that either part of the body of the vertebræ, or intervertebral substance was slowly removed, by absorption, no symptoms of caries or abscess have shown themselves, and this, with the apparent freedom of the patient from struma, point to the accident as the cause of similar pathological changes here, as those that occur in the neck of the thigh bone. The case is interesting, pathologically and surgically, and nothing could more strikingly illustrate the benefit to be derived from rest and counter irritation.

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February 18th 1862, Mrs. B. a stout healthy English woman, æt. 46, was admitted into the Hospital to-day.

In November 1861, she fell down a companion ladder on board a Steamer rolling heavily at sea in a gale of wind. In the fall she struck her back twice against the steps of the ladder and hurt herself severely. She was carried to her cabin and for some time suffered much. It does not appear that she was paralyzed, but she complained of numbness and intense pain in the back and legs, with distressing coldness of the lower extremities.

Her health quite failed, as she was confined to her cabin for some weeks: after this, she gradually improved up to the condition in which I found her.

Three weeks, or a month after the accident, a friend was rubbing some liniment on her spine and perceived that the bone was beginning to protrude. She pressed the part and found that it was very painful. This protrusion increased gradually until it attained its present condition. She now suffers very little when lying down quietly; but on standing up the pain in the spine becomes so intense that she is unable to support her own weight, and is obliged to rest again; she is quite unfitted for any work, and has been obliged to give up her situation as Stewardess on board the steamer.

Her lower extremities are now quite strong, and the kidneys, bladder, and bowels perform their functions naturally. She has a feeling of constriction round the chest, and a pain shooting in the course of the ribs, on the left side, the side towards which her spine is curved. She suffers frequently from flatulent distension of the abdomen.

She insists that she had no malformation of, or injury to the spine before the accident, that "her spine was quite straight." That it was not unil three weeks after the fall that it began to protrude, and this part of her statement is confirmed by the female who attended on her.

I find that about the 8th dorsal vertebra there is considerable protrusion posteriorly, angular curvature, with lateral displacement. The prominent part is very painful on pressure, she complains loudly when it is touched; when recumbent there is scarcely any pain, but directly she rises, both in the back and side, it is severe. She has a quick catching tone of voice, but this may be natural; her respiration is unembarrassed; her lower extremities are quite strong. I find no symptom of Psoas, iliac or lumbar abscess. Her appetite is pretty good, she is cheerful and in good spirits, very anxious to get well. She sleeps tolerably, and is in good condition.

February 22nd. After a few days rest and quiet, Potas : fusa was applied on either side of the spinal projection, to the extent of three inches.

The following morning she expressed herself most gratefully, as being perfectly relieved from the deep seated spinal pain. Two large sloughs have formed. Apply a poultice till these separate, then keep the issues open.

She is to remain perfectly at rest in bed, to have nourishing diet.

March 1st. She is much better; issues rather painful; sloughs separating.

March 4th. The issues have been kept open by touching them with nitrate of silver, they discharge freely; she is very much better, quite free from pain when she stands and walks.

March 8th. Continues to do well; she may now sit up and walk a little.

March 10th. She is still improving, says the spinal pain is entirely gone; still has slight pain in the left side. The issue may now be allowed to cicatrize. She is cautioned against too much exertion either in walking or sitting up working.

March 13th. She may go out, on leave, to see her friends. She says she is quite well. March 16th she left the Hospital entirely cured.

The relief caused by the escharotic was almost immediate, and permanent. The subsequent improvement was rapid. Rest, in combination with counter irritation, arrested the mischief.

The spine remains curved at an angle posteriorly, and somewhat to the left side, and she appears from her dress, and from her own account, to have lost in stature about an inch. I may add that the peculiar quick catching tone of voice, has almost disappeared.

I have no doubt the actual cautery would have been equally efficacious, with the Potassa fusa; but, there was the dread of the hot iron.

## XII.—RADICAL CURE OF HERNIA.

Since my last report on this operation, I have had three cases of Inguinal Hernia treated according to Wützer's method, and eight by Mr. Syme's modification of it.

Abstracts are appended.

Of the Wützer's cases, two were favorable; they were put to the severest tests before leaving Hospital. One case remained for some months after the operation, under treatment for Syphilis, and although much reduced by the disease, the protrusion did not recur, but there was slight varicocele afterwards.

I have to record eight cases of Inguinal Hernia operated on, according to the simple method devised by Mr. Syme. The results, although in so small a number quite insufficient to found definite conclusions on, have been so far satisfactory, that I cannot but regard it as an improvement on the German operation. It is not only simpler, but it is of shorter duration. The average time under treatment being less than in Wützer's method.

The instruments I have used are simply plugs of teak or deal wood, about 4 inches long, oval, slightly tapering and fitted to the ring. To the end of the plug, passing through it obliquely, are attached two strong silk threads. A curved needle and a small piece of smooth wood on which to knot the threads are also required. The mode of operating is as follows: one finger, and on it the curved needle, threaded with one of the silk threads, is passed well into the canal. The needle, guided along the finger, is then pushed outwards through all the tissues to the surface, and withdrawn, to be threaded with the second silk which is introduced and pushed through in a similar manner, near the first perforation.

The needle is now finally withdrawn, and the threads being tightened, the plug is drawn into the canal, a little aid from the fingers of the operator in passing it through the ring being required.

The plug being well in the canal, the threads are firmly knotted over a piece of wood, thus the invagination and plug of wood are retained there.

In the case recorded by Mr. Syme, in his recent work on Clinical Surgery, it appears that the plug was retained in the canal eleven days. In no case have I found it desirable to retain it so long, for the reason that irritation and suppuration, caused by the threads, would not admit of it. In the first two cases the knot was cut, and the plug removed, on the 6th morning; in the third case on the 5th day. In all, free and purulent discharge was set up, and much thickening, from exudation, about the threads.

In no case was there any symptom of peritonitis, though there was a good deal of pain about the points where the threads pierced the integument.

In the third case, a curious symptom occurred, very profuse purulent expectoration with cough, slight posterior dulness and faint crepitation, with tubular breathing, made their appearance suddenly on the third night, but ceased on the plug being withdrawn.

As the patient had no previous symptom of chest disease whatever, this sudden invasion of what seemed to be profuse suppuration in the lung was very remarkable; so much so that it was suggested that a liver abscess might have opened in this direction. The previous freedom from any indication of liver disease hardly justified this conclusion, and I cannot help referring it in some way to the operation. The irritation and suppuration caused by the plug and threads was just at their height, when it commenced. With the removal of the plug the bronchial discharge ceased. The pulse remained slow and firm. There was neither pain nor dyspnœa. Had there been any of the usual signs of blood poisoning, I should have looked on it as a sudden and violent invasion of Pyæmia. The explanation is rather to be sought, in some vaso motor influence referred to the mucous membrane of the bronchial tubes and lung, and giving rise to this sudden and excessive secretion of purulent matter.

## CASE No. 1.

E. H., European, æt. 46, was admitted into the College Hospital on the 18th September 1861, with oblique Inguinal Hernia of both sides. He was operated on for the radical cure of the hernia of the right side only, on the 23rd September 1861, by Wützer's method, with a single needle. The needle was removed on the 8th day. The wound in the right Inguinal region, at the exit of the needle, healed within the course of three weeks, and a truss was applied on the 20th October 1861. On the 16th November 1861, Hernia came down as far as the external ring.

Patient left the Hospital on the 18th December 1861.

## CASE No. 2.

A. A., European, æt. 21, was admitted into the College Hospital on the 22nd December 1861, with oblique Inguinal Hernia of the right side. He was operated on for the radical cure of hernia by Wützer's plan with a single needle on the 30th December 1861. The instrument was removed on the 6th day after the operation. The wound, at the exit of the needle, healed within the course of a fortnight, and a truss was applied on the 21st January 1862. He was discharged apparently cured on the 31st January 1862.

## CASE No. 3.

F. F., European, æt. 30, was admitted into the College Hospital on the 3rd February 1862, with oblique Inguinal Hernia of his right side. He was operated on for the radical cure by Wützer's method with a single needle on the 14th February 1862.

The needle was removed on the 10th day after the operation. The wound at the exit of the needle healed within the course of a month, and a truss was applied on the 20th March 1862. He remained in Hospital under treatment for a period of two and half months afterwards for secondary syphilis. He was discharged cured on the 17th June 1862.

There was in this case slight varicocele after the operation.

## CASE No. 4.

I. L., European, æt. 25, was admitted into the College Hospital on the 23d April 1862, with oblique Inguinal Hernia of the right side. He was operated on for the radical cure of his hernia by Mr. Syme's method on the 25th April 1862, with a middle sized plug. The plug was removed on the 30th April 1862. The wound at the exit of the threads healed, and a truss was applied on the 22d May 1862. He was discharged cured on the 23d May 1862.

## CASE No. 5.

Mahomed Tihar, Mahomedan, æt. 30, was admitted into the College Hospital on the 19th March 1862, with hydrocele of the right Tunica vaginalis, and oblique Inguinal Hernia of the right side. He was first successfully treated for his hydrocele, and then he was operated on for the radical cure of the hernia by Mr. Syme's method, with a small sized plug, on the 28th April 1862. The plug was removed on the 6th day, and a truss was applied on the 21st May, but the Hernia came down on the 23rd May.

Mr. Syme's operation, with the same sized plug was repeated on the 28th May. The plug was removed on the 6th day after the operation.

On the 30th June he appeared perfectly cured.

## CASE No. 6.

G. C., European, æt. 46, was admitted into the College Hospital on the 3rd March 1862, with acute periostitis in his left leg, and direct Inguinal Hernia of the right side. He was operated on for the radical cure of hernia by Mr. Syme's plan, with a middle sized plug on the 7th May 1862 after being cured of his periostitis. The plug was removed on the 5th day after the operation. The wound, at the exit of the thread, healed within the course of three weeks; and a truss was applied on the 2nd June 1862.

There was slight protrusion, but so small as to cause no inconvenience.

## CASE No. 7.

Harradhun, Hindoo, æt. 25, was admitted into the Medical College Hospital on the 15th August 1862, with oblique Inguinal Hernia of his right side of 2 months' standing. He was operated on for the radical cure of hernia on the 2nd September, by Mr. Syme's method. The plug was removed on the 2th September, 1862. He was discharged cured on the 4th October, 1862.

## CASE No. 8.

Ram Bromho, Hindoo, æt. 21, was admitted into the Medical College Hospital on the 13th October 1862, with Inguinal Hernia of his right side of 2 years' standing. He was operated on for the radical cure of hernia by Mr. Syme's method on the 14th October 1862, but it proved unsuccessful. He was again operated on, on the 17th November 1862.

The plug removed on the 3rd day.

He is still in Hospital, but nearly well.

## CASE No. 9.

Dwarka Nauth, Hindoo, æt. 26, was admitted into the Medical College Hospital on the 15th October 1862, with Inguinal Hernia of the right side. He was operated on for the radical cure of hernia on the 4th November 1862, but unsuccessfully. He was operated on again on the 22nd November 1862.

The plug was removed on the 5th day of the operation.

The patient is still in the Hospital, but nearly well.

## CASE No. 10.

Oboy Manjee, Hindoo, æt. 25, was admitted into the Medical College Hospital on the 10th November 1862, with Inguinal Hernia of his right side of 2 years' standing. He was operated on for the radical cure of hernia by Mr. Syme's method on the 13th November 1862. The plug was removed on the 16th November 1862.

The patient is still in the Hospital, doing well.

## CASE No. 11.

Najub Oolah, Mahomedan, æt. 35, was admitted into the Medical College Hospital on the 7th November 1862, with

Inguinal Hernia of his right side of 4 years' standing. He was operated on for the radical cure of his hernia by Mr. Syme's method on the 8th November 1862. The plug was removed on the 12th November 1862.

Discharged cured on the 28th November 1862.

## XIII.—NEUROMA.

A middle aged healthy looking Hindoo, was admitted on the 15th March with a tumour about the size of a pigeon's egg, on the lower part of the anterior surface of his right forearm, in the course of the ulnar artery and Nerve.

It was firm, very painful to the touch, causing numbness and shock, up the arm and in the hand, on the least pressure; it moved, as though connected with the flexor tendons; although very painful when touched or moved, it was not so when undisturbed; it interfered greatly with the usefulness of the limb, and he was most anxious to have it removed.

I dissected it out under Chloroform.

Making an incision through the skin, I found the fascia and ulnar artery tightly stretched over the tumour. The fascia being divided and the artery drawn aside with a bent probe, the tumour was easily turned out, and found to be incorporated with the ulnar nerve, not growing on it, but the nerve fibres spread out throughout its substance. The only way of removing it was to cut through the nerve above and below; this I did, thus removing about two inches of its trunk. The wound was then closed by a couple of wire sutures. The operation was followed by partial numbness of the little finger and ulnar side of the ring finger, but the man closed and opened his hand perfectly well and expressed himself much relieved. He left the Hospital the day after, and returned twice or thrice to have his arm dressed. The wound healed without trouble.

This is a very good example of that form of fibrous growth which from its connection with the nerve has received the name of neuroma. It appeared to consist of dense white fibrous tissue, among which the nerve fibrils were distributed; not equally throughout, but so much so as to render separation of the nerve trunk from the tumour impossible. The tumour was of the shape and size of a large pigeon's egg, or rather, as to shape, it was fusiform, being tapered off at each end to the size of the nerve on which it was placed. It had been of slow growth, and though painful with every movement of the hand, and interfering with the utility of the arm, it had not injured his general health, which was robust.

These neuromatous growths are not always found on the trunk of the nerve, nor are they always of idiopathic origin: they may occur as the consequence of injury to the trunk of the nerve, or on the end of it after division, as in amputation, in which case they form bulbous growths at the extremity, giving rise to intolerable pain, and requiring subsequent excision or re-amputation.

They occur, sometimes, in the form of small subcutaneous tumours excessively painful, and which may occur on any part of the body, and may, or may not, be developed in, or on, a small nervous filament. Their structure is fibrous and arranged either in loops or parallel bundles of fibre. They may partake of the fibro-cartilaginous character, cartilage cells being found in the interspaces of the fibres; and it is probable also that they may be found in any of the stages of development which lead up to the most perfect form of fibrous growth, such as the fibro cellular, fibro nuclear forms. Multiplicity is sometimes a prominent character, cases being recorded, where they have been found in great numbers occupying almost every large nervous trunk in the same person. Fortunately, for the most part, in such cases, they are painless.

The only treatment that, in a large proportion of cases, can be had recourse to is of a palliative nature. Iodine externally and internally, or anodynes to allay pain and irritation. In the case of a single tumour, such as the one I have here recorded, excision is the most reasonable treatment, as it removes the disease without causing paralysis of sufficient extent to render the benefits of the operation nugatory. Of course the removal of a large portion of any of the more important nervous trunks would be out of the question, excepting in the case of great exhaustion and pain.

It is possible that in some cases the tumour might be dissected away from within the neurilemma without removing any portion of the trunk of the nerve. And in the case of the bulbous extremity of the divided nerve, or of the subcutaneous painful tumour, excision may be had recourse to with every hope of perfect success.

## XIV.—ANEURISM OF THE LINGUAL ARTERY.

A native, about 40 years of age, presented himself on the 7th March 1862, with a swelling under the tongue, confined to the right side of the frænum. It looked at first like a ranula, but on closer examination it was found to have a tortuous lobulated configuration, about the size of a small orange lying by the side of the frænum. It pulsated strongly when compressed between the thumb and forefinger, and this pulsation could be distinctly felt under the jaw.

The tumour was of eight years' growth, and steadily increasing. It was subject to fits of violent hæmorrhage, for which he had been several times under treatment. The repeated bleeding had alarmed and reduced him so much that he was willing to submit to any treatment that might relieve him.

The anterior part of the tumour was of a livid colour, looking as though it were likely to give way at any moment. The rest of the tumour had much the appearance of an ordinary ranula. Puncturing the swelling with a grooved needle, an arterial jet followed, throwing the blood several inches out of the opened mouth. Pressure was applied for a moment, and then with a subcutaneous syringe a strong solution of tannic acid was injected; this immediately arrested the bleeding and pulsation, consolidating the tumour thoroughly within a few minutes.

The man shortly after, expressed himself so much relieved by the cessation of pulsation and hæmorrhage that he proposed leaving the hospital. He attended as an out patient for several days, during which time the tumour appeared to consolidate itself still more, and remained perfectly free from pulsation. After this we lost sight of him, he probably had returned to his home which was out of Calcutta.

This appears to have been a case of cirsoid Aneurism of the sublingual branch of the lingual artery. I have not met with a similar case before, nor can I find any such on record.

It was confined entirely to the vessel of one side of the tongue, and I believe it to be of the cirsoid variety from the elongated convoluted form and feel it presented under the mucous membrane. The pulsation was very strong and was arterial, had any doubt existed, the jet of arterial blood would have removed it.

The effect of the astringent injection was most satisfactory, for the time it completely arrested hæmorrhage and consolidated the blood in the dilated vessel. It is to be regretted that we had no opportunity of watching the ultimate result of the treatment, but I cannot help thinking from its success, so far, that it must have terminated favorably.

This form of Aneurism, or as it is also sometimes called arterial varix, though I believe most rare in the lingual artery, is not unfrequently found in the arteries of the hands, the radial or ulnar, and in the branches of the carotids. It is when situated in the larger trunks, that it is especially termed Cirsoid Aneurism. The Scalp *i. e.* in the branches of the occipitals and Temporals, is one of the most frequent seats of this somewhat rare disease, but it may be and indeed has been found on other arterial trunks. Treatment by ligature, when practicable, has been tried but not with great success. Excision has also been had recourse to where the disease was situated that it could be so removed. Laying open the tumour and stuffing it with lint, keeping up pressure until the hæmorrhage ceased, and trusting to the inflammation following, to seal up the wound, has also been tried in its turn. The latest efforts of a curative nature have been the injections of astringent fluids such as Chloride of iron or Tannic acid and the application of the Galvanic current through the tumour to produce coagulation.

These appear to offer the best promise of success, and from what I saw of the result of the Tannic acid injected in this case, I should be encouraged to repeat it, were a similar case again to occur. I think it very probable that the dense firm coagulum would in time have caused suppuration, and then enucleated itself, and with it all the diseased structure. Either this, or ligature of the main trunk of the lingual artery near its carotid origin, or it may be of the trunk of the carotid itself, would have been ultimately necessary in this case, but before putting a ligature on the artery, I determined to try the coagulating injection, and as I have said, the result was so far encouraging that I should repeat it were another opportunity to occur.

## XV.—AMPUTATION AT THE SHOULDER JOINT.

Two cases of severe injury to the arm, requiring amputation at the shoulder joint, have recently occurred. They are interesting and will serve to illustrate some remarks on this operation.

## CASE No. 1.

A Native boy, æt. 12, was admitted on the 2nd June 1862, with compound dislocation of the right elbow. He had fallen from a tree, and was picked up with the three lower inches of his humerus protruding at the joint. The accident had happened five days previously, and no attempt had been made to reduce the bone.

The arm was much infiltrated and inflamed. The pulse was perceptible at the wrist, though quick and feeble from irritation. The protruding bone was stripped of its periosteum, dry and apparently dead.

Having removed this portion, retracting the soft parts to enable me to divide through sound bone, the edges of the wound were brought together, and the arm, enveloped in a wet cloth, was placed at rest on a splint. He had fever and rapid pulse for several days after the operation. On examination of the bone on the seventh day, it was found that about an inch of the end of it was denuded of periosteum, roughened and exfoliating: the medullary canal contained pus and decaying bone, as high as the epiphysis, a long probe passing up so far, returned covered with offensive matter. There was also a collection of unhealthy pus about the denuded bone.

Immediate amputation was proposed and reluctantly consented to by the friends. The operation was performed by antero-posterior flaps, 8 ligatures were required.

He bore the operation well, and lost very little blood; the main artery was seized and compressed, as the posterior flap was made.

The day after the operation his pulse was 176, with fever, but he soon began to improve, and after the first few days the healing process went on rapidly; cicatrization was complete, and he was discharged cured on the 20th July, 40 days after the operation, much improved in health and strength.

It is to be remarked that the stump had nearly healed for several days before he left the Hospital, but a small sinus remaining in communication with the glenoid cavity of the scapula, it was thought better to keep him in until it had contracted.

## CASE No. 2.

A Mahomedan boy, æt. 8, was admitted on the 22nd of August with severe injury of the right arm, caused by a fall from a tree, about a month before admission. It appears that the fracture was a comminuted one, but it had since become compound at the upper third of the arm. The bone was necrosed and protruding. The greater part of the forearm had sloughed away. In this case, also the medullary cavity of the humerus, above the fracture, was filled with pus. He was much emaciated and exhausted, his pulse was quick and feeble. The only hope of saving life being amputation at the joint, that operation was immediately performed, under chloroform, by antero-posterior flaps, which were brought into apposition with a few wire sutures, 6 or 8 ligatures having been applied; a light dressing was then laid over the stump. Very little blood was lost; the artery being commanded as in the other case.

He remained very low for some hours after the operation, but he had no bad symptom afterwards. The source of irritation having been removed, he began to improve rapidly. The main ligature came away on the 7th day after the operation. He was discharged cured on the 17th September, having been 27 days in Hospital.

In this case there was no delay caused by discharge continuing from the glenoid cavity, such as occurred in the previous one, and as I have seen in other cases.

The boy recovered rapidly and left the Hospital much improved in health and strength. He gained flesh quickly as the wound cicatrized.

Amputation at the shoulder joint is among the most satisfactory of capital operations. The results, on the whole, being very favorable.*

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* In the Crimea from 4th April 1856 to end of the war there were

| | |
|---|---|
| Primary | 33 cases |
| Secondary | 6 |
| Total | 39 amputations |
| Of the 33 Primary cases | 9 died |
| Of the 6 Secondary | 4 |
| Total | 13 Deaths |
| Previous to 4th April 1835 | 21 other cases<br>6 died |

Grand Total of 60 cases, out of which 19 deaths occurred, or mortality of 31·6 per cent. This is not so favourable a result as in Larrey's experience.
Macleod's Surgery Crimean War.

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Larrey has recorded 119 cases, 103 or more of which proved successful. It appears to have been a favorite operation of the Baron's, for he is said to have performed it sometimes when other Surgeons would, probably, have been content to divide the shaft of the humerus. But, may not the great success of his amputations of the upper extremity have been due to this very disarticulation, which has been half censured by some? Are not suppuration of the medullary canal, or necrosis of the end of the bone, frequent sources of Pyæmia, in certain cases, after amputation through its shaft, and may not such risk have been avoided by disarticulation?

May we not affirm that the extra shock of cutting off the limb a little higher up at the joint is as nothing, in point of increase of danger to the patient, compared with the risks of suppuration incurred in amputating through such bone? my impression is that we may; especially in secondary amputations after fractures, where the bone is more than usually prone to be found in this diseased condition.

Without attempting to discuss the reason why it should be so, it is, I believe, a fact, that Pyæmia is most likely to occur as a result of bone so affected; and this is a form of Surgical fever from which recovery is well nigh hopeless, terminating as it so frequently does, in irreparable mischief in the thoracic and abdominal viscera; such as purulent or aplastic deposits in the cavity of the pleuræ, or peritonæum, or in the substance of the lungs, liver, kidney, or spleen. The primary mischief seeming in such cases to be death of portions of the tissue of the affected organ, varying in size from a millet seed to a marble, either as fragments simply dead, without change in the surrounding structures, or enclosed within an areola of deep conjestion, the central portion blanched like an ordinary white slough; or surrounded by a layer of pus, or, as indicating the most advanced state of destruction, the part is broken down and mingled with pus, forming a pultaceous abscess. Such is the form of disease that I have seen to result from blood poisoning or pyæmia caused by the condition of bone I have endeavoured to describe; and such I believe it would have been in the cases I have here related, had not the source of mischief been removed by amputating at the joint.

The conditions that may render this operation necessary are numerous; compound comminuted fractures extending to the joint, or near it, gun shot fractures, machinery accidents, or other forms of laceration, malignant growths, or osseous tumours of a non-malignant character, extensive injury of the soft parts involving the great vessels, or nervous trunks; inflammation and suppuration of the medullary membrane or cancellated texture, caries or necrosis of the head and shaft of the humerus, sloughing and gangrene of the soft parts.

Numerous methods of operating have been proposed, all varieties of the circular, oval, single or double flap. The object is to secure sufficient integument and muscle to form a good cushion and to allow the flaps to come together without tension.

It is not often left to the Surgeon's choice, he is obliged to take the flaps where he can best get them among the lacerated or diseased tissues. It matters little, however, provided there be sufficient to cover the exposed articular surface of the scapula, whence the flaps are obtained.

But when the Surgeon can select his operation, and especially when the upper part of the humerus has been comminuted, either of the methods recommended by Larrey, Guthrie, Scoutetten or Syme, modifications of the oval, may be preferred; the incisions commence at the acromion and extending downwards on either side of the axillary fold meet posteriorly. But when the shaft of the bone remains either entire, or in part, the method recommended by Lisfranc, Dupuytren, Lafaye, Garengeot, Cline and others, may be selected, as most expeditious. The flaps are made either by transfixing, or by cutting the anterior or external flap from without inwards, the inner or posterior, corresponding in size, and containing the great vessels. The head of the bone is readily turned out and the muscles, capsular ligament, and long head of biceps divided with a few decided strokes of the knife. This was the method selected in the cases I have here reported.

In operating, dexterity is needed in your assistant in raising the arm when the flaps are cut, and in turning out the head of the bone, also in seizing and compressing the artery as it is divided in the posterior flap. If this be carefully managed no pressure of the subclavian against the first rib is needed, and but very little blood is lost.

In cases of extreme exhaustion, such as in these two boys, it is of the utmost importance to save time and blood, by being as expeditious as possible. It is especially necessary, carefully to examine the bone, and if there be even a doubt as to the soundness of its medullary canal or of its exterior, it is, I believe, better to amputate at once at the joint, than incur the risk arising from suppuration of the bone, or amputation performed as a last resource when surgical fever has set in, and the thoracic or abdominal viscera are already compromised.

## XVI—STRANGULATED HERNIA.

### CASE No. 1.

A healthy looking stout Hindoo, aged 30 years, was admitted on the morning of 17th August with a large Inguinal Hernia of the right side. He has had it for three years, and it has been frequently down in the Scrotum, though hitherto he has returned it without difficulty. The tumour is as large as an infant's head. The Scrotum, Sac, Tunica Vaginalis and Testicle are all thickened. The hernia had been down 17 hours. When admitted he was in great pain, bowels obstinately constipated, and vomiting frequent, though not, as yet, of fœcal matter. Put him under Chloroform, and tried to reduce the hernia, but was unable to do so. The stricture at the external ring was very tense, and the pain there on pressure, excessive. There was also great pain about the umbilicus. Knowing the tendency of these people to rapid and sudden sinking from strangulation of a hernia, I proposed immediate operation.

The stricture was divided at the external ring and was very tense. I cut it with the probe pointed bistoury, and without opening the sac, reduced the hernia with little difficulty. The wound was brought together with wires. A full dose of opium (gr. ii) given directly after the operation.

The next day he had symptoms of peritonitis with intense pain on pressure, restlessness and rapid pulse; being a healthy peasant, I took 12 ounces of blood from his arm and ordered him opium grs. 1½ every 4 hours, with fomentations. I very seldom take blood from the arm, but did so in this case to relieve pain and render him more susceptible to the opium. It certainly had so far, a good effect, but I suspect it tended to retard recovery. However, I cannot think that, to a vigorous person, the loss of 12 ounces, or a pint of blood, can be of any serious import, and if it relieve pain, I see no objection to the practice. I had no idea by so doing of cutting short or influencing the inflammation, beyond this; and I dare say the patient would have done just as well without it, but he certainly would have had more pain, and pain is very exhausting. The next day he was better, the peritoneal inflammation gradually subsided under the influence of opium and fomentations; on the 20th his bowels responded to an enema of tepid water and a quantity of fœculent matter was voided. The bowels, after this, acted regularly without such aid.

On the 20th the scrotum began to swell and became tense and painful, fever made its appearance, fluctuation in the sac followed, and discharge of serous matter from the operation wound, which had, hitherto, been closing. Free suppuration took place in the sac, counter openings were made in the scrotum from which free purulent discharge went on for many days. Long after the bowels had become quite regular and all peritoneal irritation had ceased, he was reduced to an extreme state of debility by suppuration in the sac, and subsequently by Diarrhœa. Under the influence of Quinine, good food and stimulants, the discharge gradually ceased, the opening closed, and he was discharged convalescent on the 11th September. He returned on the 22nd to shew himself.

## CASE No. 2.

A spare sickly looking Hindoo, aged about 30, was admitted on the 5th September with symptoms of strangulated Inguinal Hernia of the right side. The Hernia was of old standing, it had been down, on this occasion, seven days, and he was said to have been in great pain, with constipation and vomiting for the last five days.

He was very low, cold skin, pulse 120 and thready, constant vomiting of fœculent matter like the Evacuations of Diarrhœa; abdomen tympanitic and painful on pressure. The tumour was about the size of a swan's egg, and very painful on pressure, especially at its neck; it was elastic to the touch.

The operation was performed immediately. The stricture was found to be within the sac, which was opened, a thickened band divided, as well as the external ring which also formed part of the constriction. The Omentum was found protruding most anteriorly, congested, and bleeding with the slightest touch. It was firmly adherent to the sac, which was also adherent in the scrotum.

Behind the Omentum was a knuckle of small intestine of about six inches in length, much inflamed and covered with lymph; it was closely adherent to the omentum, from which it was separated by breaking down the adhesions and then returned within the abdomen. The Omentum was so thoroughly adherent to the sac, and the sac to the scrotum, that it could not be detached without much laceration and hæmorrhage. The Omentum was therefore left in the wound, the edges of which were brought together, as nearly as possible.

He was very low after the operation, I saw him again soon; he had once again vomited stercoraceous matter. His bowels had also acted freely; but he was in all respects much relieved.

The following day I found that the tympanitis of the abdomen had quite subsided. Bowels had acted again. Vomiting and nausea had entirely ceased. Slight abdominal tenderness especially about the wound. Ordered him a grain of opium every 4 hours.

He continued to improve for a few days, when symptoms of mischief set in about the sac and the protruding Omentum. He had also Diarrhœa which reduced his strength rapidly.

His pulse became gradually quicker and his skin hotter. Hiccup constant; withal, the omentum looked healthy, though pus oozed from about its margins. Counter openings were made in the scrotum, and exit given to a collection of pus. Bed sores began to form, and Diarrhœa became more frequent. He grew very restless and wandering on the 22d, and on the night of 23rd he died.

The post mortem examination is worth recording.

*Abdomen.*—Peritonæum and omentum natural, except where the latter protruded. It was firmly adherent in the sac, Peritonæum suppurating and the inferiol portion of it in a sloughy condition. The sac was incorporated and inseparable from the tunica vaginalis; the intestine had some red patches on the part that had protruded, and a small quantity of lymph lay on the peritonæum just about it. The mischief in the sac had stopped abruptly at the seat of protrusion.

*Kidneys.*— Quite healthy.

*Liver.*—Rather large and deeply conjested, friable, contained no pus.

*Large intestines.*—Up to cæcum healthy, but very anæmic.

*Small intestine.*—About six feet slit up, mucous membrane softened and covered with patches here and there of grey superficial ulceration. No redness or congestion. Intestine full of thin fæculent matter.

*Thorax.*—Both Pleuræ, especially the lower part, plastered over with yellowish grey aplastic lymph. Upper portion adhering by recent, but firm, adhesions.

*Lungs.*—Pale in front, with particles of discoloration—did not collapse on opening the thorax: posterior portion of both intensely congested. Several patches of well marked lobular Pneumonia. The lungs, especially the right one, studded with small abscess from the size of a pea to that of a marble, patches of grey cheesy looking lung tissue, in some cases surrounded by pus, in others by a dense areola of congestion. All, no doubt, different stages of breaking down of the lung tissue.

In this case there had been no symptom of Pyæmia beyond the quick pulse and feverish heat; the day before his death, only, he complained of pain in the right shoulder, but he said it was from pressure. He had neither cough, nor such hurried respiration as to attract attention to the thorax. Diarrhœa was, apparently, the cause of death.

## CASE No. 3

A Jew named S. Cohen, aged 40, admitted on the morning of the 14th September with a large Inguinal Hernia of the left side. He has a combination of Hernia, thickening of the Scrotum, enlargement of the testicle and hydrocele. The hernia has been liable to descend for years, but he has always, hitherto, been able to return it himself. On this morning it came down about 7 A. M, he was unable to return it and soon after, symptoms of strangulation set in. Great pain in the seat of the constriction at the external ring, intense pain about the umbilicus, nausea and vomiting.

At 2 P. M. I was sent for. Chloroform, ice, warm baths, Enemata had been all tried with no benefit. The pain was rapidly increasing, and rigidity of the neck of the hernia becoming greater.

He was a spare unhealthy looking man, and much depressed by the condition he was in. The operation was performed under Chloroform; a large vein, in the way, was kept aside with a blunt hook. The stricture at the external ring, was divided with a probe pointed bistory. The hernia was returned without opening the sac, a few sutures, pad and bandage were applied, and 2 grains of opium given immediately.

There is nothing remarkable to note in the after condition or treatment of the patient, the wound united by adhesion, and he recovered without a bad symptom.

The bowels acted freely on the 17th after a tepid water enema; he continued to do well and was discharged cured on the 29th September, having been fitted with a truss to retain the hernia, (which had again descended,) within the abdomen.

He declined to submit to any operation for the radical cure of his hernia being much pleased with his truss, as he never before had one.

These cases illustrate the advantage of operating early in strangulated hernia. I am convinced that, however great the danger of delay may be in the European, it is greater in the Native of India. I am satisfied that early operation is most conducive to safety—a native is brought to the Hospital with strangulated inguinal hernia; you are told it has been irreducible for some hours. That for two days, or more, he has had pain, sickness and constipation; you try to reduce it under chloroform and fail, but you are perhaps led, from the absence of apparent urgency, to delay the operation; you find that there is abdominal pain, but that it is not so intense as you would expect; there is nausea but not decided vomiting; the bowels are constipated, but a small quantity of fœculent matter has been recently passed. The skin perhaps is cool, the pulse feeble, the native pulse is often feeble in health; the tongue is clean, and the countenance is expressive of nothing more than a native can assume for the most trivial ailment. You think you are not justified in opening a man's abdominal cavity on such evidence as this, you order ice to the tumour, perhaps an enema, and wait. The next time you see him, probably being sent for before your next ordinary visit, you find a change, his pulse has become quicker, his voice more hollow and feeble, his skin cold, he is in a general state of depression, and you then either recognize that he is sinking, or that he is so feeble that he is hardly able to bear the operation which perhaps comes too late to save him.

The natives of India, especially the wretched poor in Calcutta, are extremely prone to pass into this state without any of those demonstrations of an asthenic character that, in the European, or even the vigorous inhabitant of the N. W. would indicate strangulation, inflammation and approching gangrene. The condition of strangulation is prone to pass rapidly into that of gangrene, and it is most necessary to recognize this and operate early.

I have remarked also the liability to suffer from inflammation and suppuration in the scrotum after the operation, owing no doubt to irritation of the unreduced sac; this to some extent, increased by the manipulation, the scrotum and sac undergo in attempts to reduce the hernia. In a large proportion of the natives of India, the scrotum, the testicle and the irreducible sac of an hernia, where there is this complication, are very prone to hypertrophy and thickening, and in this condition no doubt they are more likely to take on suppurative inflammation when irritated, than if in the normal state.

Suppuration in the sac after operation for strangulated hernia, I believe to be a frequent cause of death, and it should, therefore, I think, be remembered as an additional reason why all excessive squeezing should be avoided in attempts at reduction, and as another argument in favor of early operation. I believe that, if after a fair trial under Chloroform, the hernia cannot be reduced, and if, in old and large herniæ, where there is no great urgency, after the application of ice, or the use of enemata, the protrusion is not speedily replaced, the sooner the operation is performed the better. And as to the question of opening the sac, I am of opinion that every effort should be made to avoid doing so, short of returning a hernia, strangulated within its own sac, into the abdomen.

## XVII—MEDULLARY DISEASE OF AN UNDESCENDED TESTICLE—REMOVED.

A man named Ramnath, aged about 45, of spare but muscular frame, of rather sallow complexion, a native of the suburbs of Calcutta, was admitted into the Medical College Hospital on the morning of the 29th October 1862, with a tumour in the right Inguinal region lying between the external and internal rings. It was painful on pressure, hard, nodulated and about the size of an orange. He had a somewhat thickened scrotum and also hydrocele. There was a testicle on the left side, none on the right in the scrotum, but he has always had a small swelling in the situation of the present tumour. About 4 months ago this swelling began to be painful and to increase in size, it became rapidly, larger and more painful, the pain being paroxysmal and of a lancinating character. There was nothing peculiar in his appearance, and he says,—but for the tumour, he is well enough: its rapid increase and the pain, however, have made him anxious to have something done.

He is married, has no children, sexual power was perfect until lately, it has now become impaired.

His father died of sloughing of a scrotal tumour, caused by the application of irritants; his mother died of Cholera; he is not aware that any of his relatives have suffered from tumour or malignant disease.

There is no glandular enlargement, in the vicinity, the mischief is confined entirely, as far as we can detect, to the tumour. I came to the conclusion that this was one of those somewhat rare cases, a testicle arrested in the Inguinal canal since infancy, and become in middle life, the seat of malignant disease.

Having this view of the case, I determined to attempt to remove the tumour.

The operation was performed, immediately, under chloroform. An incision was made in the long axis of the tumour, as though for strangulated hernia, and the fasciæ and external oblique tendon divided on a director, until the tumour was exposed. It was of a pinkish livid color, rather nodulated on the surface. Dissecting round it I passed my finger easily behind the cord which appeared quite healthy, and having enclosed this in a ligature divided it and dissected out the tumour, reflecting it downwards; the edges of the wound were brought together with wire sutures and a pad of lint and a bandage applied.

The tumour was about the size of an orange, on cutting it across it presented a greyish pink appearance, interspersed with patches of yellow deposit. The cut surfaces became convex, as though they protruded on being released from tension by the incision—on scraping the surface, a milky juice exuded plentifully.

This, placed under the microscope, presented abundant cell forms, nucleated, double nucleated, granular and caudate cells and free nuclei. It was a good specimen of cancer, rather denser than one generally sees in the medullary, not quite so dense as in the hard cancer. It more nearly resembled the encephaloid than the Scirrhus. No remains of the true structure of the testicle were visible unless what appeared as part of the capsule might have been such, altered and degenerate by pressure—the cord I should add, seemed unaffected.

There was no bleeding, the ligature round the cord was the only one applied.

The wound inflamed the following day, and it soon began to discharge freely; but directly after the operation and ever since, he has expressed himself greatly relieved; beyond the local inflammation there has been no untoward symptom. Applied Argent nit: ʒi @ Aquæ ℥j to the lips of the wound and surrounding integument which had an erysipelatous blush, ordered fomentations, aperients, good plain diet with a little Port wine and some quinine as a tonic.

On the 3rd November the wound was less inflamed, and the discharge more healthy. Continued the Arg. Nit. and applied a poultice. In all respects, constitutionally, he was doing very well. The ligature on the cord came away on the 16th.

He continued to improve and was discharged cured, on the 19th November.

These cases of undescended testicle are interesting from their rarity, the more so, when they become the seat of malignant disease. In this case, the testicle appears to have been arrested in its descent, and to have remained quiescent in the Inguinal canal, between the rings, until the middle period of life, when it began to increase in size and to be painful, and at last to cause so much inconvenience as to send the sufferer to seek relief at the Hospital.

The disease appears to be an example of the firm kind of Medullary cancer, and so far as I could ascertain it was confined to the testicle. The general health was but slightly, affected. No enlargement could be detected in the neighbouring glands, and no tenderness on pressure to indicate any irritation in those in the lumbar region. The spermatic cord seemed unaffected, and the tissues surrounding the testicle were not involved. There is reason therefore to hope that the relief afforded by the operation may be enduring, though all experience of the results of removal of medullary cancer, is unfavorable to the prospect of permanent immunity from the disease.

As the case is one of rarity, and but few such have been described, I am glad to have the opportunity of contributing this example of medullary disease of an undescended testicle to the records of surgery.

# XVIII—TETANUS CAUSED BY A WOUND OF THE HAND TREATED BY SECTION OF THE MEDIAN NERVE.

The following case is very interesting and therefore I have given it in detail. It argues favorably for the treatment of Tetanus, and perhaps other forms of nervous disorder of a severe nature depending on peripheric irritation of a nerve, by section of its trunk, thus cutting off completely the source of the mischief. This should only be had recourse to in extreme cases, but unfortunately these diseases are so frequently of the most urgent character, that they justify any method of treatment that may reasonably hold out hope of relief.

In the case here reported, I think it is evident that amelioration of the symptoms followed, and was the result of the division of the Median nerve.

The symptoms that continued after the operation, were due, no doubt, to inflammation or irritation extending up the nerve, beyond the seat of division, and so influencing the muscles of the forearm to which its branches are distributed, as well as to the integument which is supplied from the same source. These symptoms of a reflex character, and which might be traced to the irritation, ceased, or, at all events, were greatly diminished directly after the operation. The mere persistent contraction of the forearm, which also finally yielded, may be referred either to the inflammation extending up the trunk of the nerve from the original seat of injury, or to the irritation at the upper end of the divided nerve, where involved in the granulations by which the wound in the integument, made for its division, healed. It would appear that union of the divided nerve was also subsequently effected, and that its functions were to a great extent restored, for the hand was, when he left the hospital, regaining the power and sensation it lost by the operation.

It is not often, perhaps, that we can point to the particular nerve though irritation of which, Tetanus, Epilepsy, or the Nervous disease, whatever it be, is excited; but it appears to me that this case speaks strongly in favor of early division of the nervous trunk, if it can be ascertained, or of amputation above the injury in cases where it is impossible to assign the mischief to any individual trunk.

In this case the splinters had penetrated just in the line of, and to the depth where, the Median divides into its digital branches; by section of the nerve just above the annular ligument, the source of irritation was cut off, yet leaving the branch which supplies the skin of the palm of the hand, and ball of the thumb uninjured.

In reference to this case, I would quote the following extract from Dr. Brown Sequard's paper on Diseases of Nerves, page 880. Vol. iii of " Holmes's System of Surgery."

"The cases shewing that Tetanus may be cured either by an amputation of a limb or section of a nerve, clearly prove the dependence of this affection on an irritation starting from some peripherical part of a nerve. Those who maintain that Tetanus when it has fairly begun and attacked not only the head but the trunk and limbs, cannot be cured by these operations, have not read the details of the cases of cure which have been published. No doubt that in many cases in which the spinal cord is either inflamed or rendered extremely excitable, the section of the nerve, or an amputation will be of no avail: no doubt, also, that if an inflammation has been propagated high up in the trunk of a nerve towards its roots, these operations will be useless; but it is, nevertheless, most important to give the chance to the patient. I need not say that the simple division of a nerve will always be preferred to an amputation, unless when there are some special reasons for the last consideration."

From this we may deduce, that when, after a wound in the extremities, Tetanus makes it appearance, it is better not to delay local treatment. Divide the nerve if you can. If you cannot isolate the particular trunk peripherically affected, it must be a question whether you will amputate at once, or endeavour to allay the mischief by milder local measures.

My own experience of traumatic Tetanus and the unsuccessful results of all other treatment would incline me to amputate in such a case, especially if it were in the arm, forearm, foot or leg; where the mischief is in the thigh, it would indeed be a matter of great doubt and serious consideration, as that operation in itself is so great a source of danger to life.

The appearance of decided tetanic symptoms should be the indication for immediate treatment of a decided nature, before, either inflammation extending up the nerve trunk, or an excited condition of the cord, has shifted the seat of danger from the periphery, to the nervous centres.

## CASE.

A young Brahmin, named Ram Narain Chatterjea, aged 23 years, was admitted on the morning of the 3rd November with a painful condition of his left hand. A week ago he ran some splinters of bamboo into his hand at the root of the thumb. They penetrated, broke off, and remained lodged in the palm of the hand just by the ball of the thumb. Suppuration followed, and, with it, much pain.

He had had, also, curious spasmodic symptoms during the last 3 days; he could close the fingers of the injured hand, but when he opened them they were again spasmodically contracted and twisted. The thumb and 3 fingers supplied by the Median nerve only were implicated. He had no spasm of the arm, but he had pains in the shoulder of that side and partial closure of the mouth which opened sufficiently to introduce the handle of a table knife. He was in good spirits, notwithstanding his precarious condition, and he seemed to have enjoyed good health before the accident.

I made an incision into the palm of the hand and extracted a splinter about an inch in length; he expressed himself relieved after the operation. Ordered him an enema of castor oil and turpentine, and two grains of opium immediately.

Nov. 4. He is not so well, spasms continue in the hand; has had spasm in the back and some rigidity of the jaw. He slept but was frequently disturbed by their recurrence. The slightest touch throws the arm, back, and jaw into a state of spasm. Ordered Tinct: Cannabis Indica min : x Chloroform min : x, every 4 hours. Enemas of turpentine and oil every 6 hours. Diet of milk and sago, or whatever he will eat, (he is a Brahmin). Poultices, with opium, to the wound.

On examining the wound closely I found and removed, another small splinter. As the seat of irritation seemed to be in the Median, the splinters being impacted just where it divides into its digital branches, I determined to try what effect section of the nerve above the injury would have. I accordingly placed him under the influence of Chloroform and divided it just above the annular ligament. The immediate result of the operation was not striking, very little if any change in the condition of the arm followed. I saw him again 6 hours after, he said that the fingers were somewhat benumbed, but he was in such a state of general uneasiness, from pain in the hand and arm, that he hardly knew of any change except that the contractions of the arm were much less frequent and severe than before.

He seemed quieter.

The Hemp and Chloroform mixture, the Opiate poultice, and night opiate were continued.

Nov. 5. He is better this morning, slept pretty well, the rigidity in the neck and jaws is gone. The spasms in the hand and arm continue, but with less violence, and persistence.

Continue the Hemp and Chloroform, the Poultice, and Opiate at bed time. Enema every 6 hours.

Nov. 6. Has a good deal of pain in the arm, but the spasms are much less frequent. The hand remains contracted, the fingers firmly bent into the palm. Continue the same treatment.

Nov. 7. Condition generally improving; no pain in the back or jaws. He slept better last night. Continue the same medicine, local applications and food.

Nov. 8. Pain in arm, and rigidity of fingers less, no return of trismus, the wound in the fore arm, where the nerve was divided, is beginning to suppurate.

Nov. 9. He continues to improve. Discontinue the Hemp and Chloroform. If the bowels are confined give an aperient. Good diet. Dress the wounds with a solution of opium.

Nov. 12. Fresh collection of matter having formed in the hand, made incisions, and, with the pus, removed another splinter, but there has been no return of the spasm. The fingers continue bent into the palm, but less rigidly than before.

It is needless to go on reporting the daily symptoms, he improved steadily, the hand remained for some time contracted, long after all spasm elsewhere had ceased. But it gradually relaxed and when he left the Hospital on the 28th November, he could with slight effort straighten the fingers and was regaining the use of them. The wounds in the hand were healed, and that in the wrist was cicatrizing. He had regained much of the lost power and the hand promises to have much of its former utility.

It may be said that the Hemp, Opium and Chloroform were the real remedial agents in this case; I do not think so, and those who have seen and watched the progress of traumatic Tetanus in this country and know its obstinacy in resisting all internal remedies, will, I think, incline to agree with me that division of the nerve arrested the mischief. It was done shortly after the Tetanic symptoms set in, and before, either a generally inflamed condition of the whole Median trunk could have been developed, or before that excited state of the cord, which is probably induced in severe and fatal cases of Tetanus had been excited into action. I hope the mode of treatment may meet with further trial, it has, at all events, as much of reason, as empiricism to recommend it.

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# CLINICAL
# OBSERVATIONS IN SURGERY.

BY

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## No. XXXIV.—HYPERTROPHY OF THE TONGUE.

This affection, occurring independently of acute inflammation of the organ, is so rare in this country that I only remember to have seen one case, the particulars of which are here detailed.

The disease is considered by some authorities to be usually, if not always, congenital, and cases are recorded where it was observed in young infants, who were born with their tongues hanging out of their mouths. In others it made its appearance in early life, or at all events was first noticed then, and may perhaps have been congenital, as a slight amount of hypertrophy might escape observation in infancy. But it would appear that the disease may supervene at a later period. In the present case, there is nothing to show that the patient had any abnormal condition of the tongue for the first fifteen years of his life. The condition can hardly be called one of true hypertrophy; for had the increase in size been due to textural changes of the nature of true hypertrophy, it would not have yielded so readily to the simple treatment by pressure that was adopted. It must rather be regarded in the light of a swelling or infiltration of the soft vascular tissue of the tongue, combined, no doubt, with a certain amount of tissue change, the result of textural irritation depending on some obscure cause.

It is to be regretted that he could not be detained in hospital long enough to observe whether complete restoration to the natural dimensions could be accomplished, and also whether any improvement could be effected in the distorted lower jaw; but he was so much pleased and satisfied with the progress, that he had made during his stay in hospital, that he could not be induced to remain longer. It is probable that the removal of a triangular portion, including the apex of the tongue, would have relieved him more speedily and effectually, but he would not submit to any operative proceeding. The separation of the upper from the lower teeth—the result of pressure by the enlarged tongue—was very remarkable, and not only interfered with his articulation, but also prevented him from biting his food. This, perhaps, to a Hindoo who lives chiefly on rice, was of comparatively little importance, and he seemed quite contented that it should remain in condition. Pressure exercised for some time had not produced that the least change, and it is doubtful if it ever would have done so at his age. Had it been applied in infancy, the result might have been different. The upper were separated from the lower incisor teeth by an interval of nearly an inch when he left the hospital.

A Bengali Brahmin, named Bejoy Chund, aged 20 years, was admitted into hospital on the 20th of August, 1866, with hypertrophy of the tongue. The organ was enlarged not protruding beyond the lips, but the mouth could not be

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closed as the jaws were separated, and the lower teeth everted by the pressure. He was a healthy-looking young man in all other respects.

He states that about ten years ago he had a severe attack of fever, and immediately after it the tongue began to swell; it rapidly increased until it protruded from the mouth. He applied for treatment, at a neighbouring dispensary and the swelling subsided, but the amendment was only temporary; for in another month it again began to increase in size, and from that time it has remained much in its present condition; occasionally subsiding a little, and again increasing with symptoms of inflammation. He says that he never had syphilis and never took mercury; indeed, he is a remarkably healthy-looking person. The lower jaw is pushed downwards, and the upper and lower teeth are separated by an interval of nearly an inch. The tongue is much enlarged, round, and not compressed; it has several patches of enlarged papillary growth, not unlike the commencement of epithelioma; it is increased in length about two inches, smooth, red, and cylindrical towards its apex. A portion of the enlarged papillary growth, having been snipped off and examined under the microscope, showed only fibrous structure. The tongue is slightly painful on pressure, but it is the inconvenience, rather than the pain, that he complains of. He has difficulty in masticating, and his speech is much affected. Some slight increase of the growth has brought him to Calcutta to see if there be any remedy.

*August* 25*th*.—I bandaged the tongue with a small roller, having first applied a solution of Sulphate of Copper and prescribed *five* grains of Iodide of Potassium, three times a day.

26*th.*—The tongue is somewhat smaller. Continue the bandage and medicine.

28*th.*—The tongue is considerably reduced in size by the pressure. Continue the bandage, and the Potas: Iodid. I also applied pressure to the jaw, by a bandage round the head, with the view of remedying the distortion of the bone.

*September* 10*th.*—The tongue is diminishing, but not so rapidly as it did at first. It is now retained easily in the mouth, and his speech is more articulate.

There is no change in the jaw.

*October* 2*nd.*—The Tongue nearly reduced to the natural dimensions, and the hypertrophied papillæ have almost disappeard, but there is no improvement in the position of the jaw. He left the hospital on the 12th of October; the tongue nearly natural in size, and his speech much improved, but the distortion of the lower jaw remains, and I fear is permanent.

The distance between the upper and lower incisors, when the molar teeth are in apposition, is nearly an inch.

# RADICAL CURE OF HERNIA.

## No. XXXV.

In continuation of former reports on the subject, I have to note the occurrence of the following cases of inguinal hernia, which have been treated by the insertion of a wooden plug into the inguinal canal.

I am satisfied that this operation, if carefully performed in favourable cases, will meet with a very fair amount of success, and I would strongly urge the necessity of paying great attention to details in ensuring the perfect invagination of the scrotum into the canal, so that the needle in perforating its apex may traverse the abdominal wall close to the internal ring. For it is on the changes that take place in this situation that success depends. In the *post mortem* examination of the body of the French sailor, who died from an accident sometime after a successful operation, it was very clearly demonstrated that the internal ring may be altogether closed, and that thus an absolute and permanent cure may be effected. To ensure this it is essential that the needle should perforate near the inner ring, and that the inflammatory products should be formed there.

I donot think that great danger necessarily follows, even though the peritoneum, within the abdominal cavity, should be punctured. The epigastric artery is hardly likely to be injured, as it lies beneath the parts that should be perforated.

In two of the following cases certainly, and probably in others, the peritoneum within the abdomen was wounded, and no peritonitis resulted. One, the case of an English sailor, recovered. The second—the only death that has yet occurred, took place from pyæmia which followed an attack of erysipelas. In this case the peritoneum had been punctured, but there was no inflammation whatever within the abdominal cavity; death being caused by blood poisoning from the erysipelas.

I am also satisfied that the invagination itself has little if anything to say to the success of the operation. In some cases that succeeded perfectly, it came down, whilst in others it remained in the canal. The secret of success in cases where the hernia is tolerably recent—for in these only, I believe, will it quite succeed—is to ensure the complete invagination of the integument, and thus the passage of the needle through the abdominal wall, close to the inner ring. Where the hernia is old, the rings large and both are dragged into close apposition the operation is not likely to do more than limit the size of the aperture, and render the hernia more controllable by aid of a truss. In such cases it is necessary to be cautious in passing the needle through the abdominal wall, that it is not pushed beyond the inner ring and the peritoneum wounded; for though this may happen without any ill effect, we cannot regard a punctured wound and a ligature in the peritoneum as other than a serious accident. It is necessary too that the plug should be kept in, until there is free suppuration about the ligatures, and care must be taken, during the after treatment, that proper support is applied over the inguinal canal, and that the patient is prevented from all efforts at straining or other muscular exertion, until the wound in the abdominal wall is cicatrized.

I have recently operated on two cases of inguinal hernia by another method—that recommended by an American Surgeon, Dr. Chisholm. The operation is very simple, and its success is dependent on the assumption that metallic wires will lie quiescent in the tissues, without causing suppuration. The operation was performed as follows:—The integument of the scrotum was invaginated with the finger into the inguinal canal. A curved needle with its eye near the point was then introduced on the finger into the canal, and made to perforate the internal pillar. It was then threaded with a silver wire, and withdrawn sufficiently to enable me to pass the point through the external pillar. The point of the needle was made to emerge through the same opening in the integument, by dragging the skin over the point of the needle. The loop of wire was then tightened, traction being made on the scrotum, so as to draw it down leaving only scrotal fascia invaginated, and thus the pillars of the ring were drawn together. The wire being twisted was cut short off, and allowed to retire within the puncture.

This had the effect in both cases of restraining the hernia; in one case only temporarily, in the other apparently permanently; but instead of remaining quiescent and free from irritation in each case, most profuse suppuration was excited, which continued for days, and much exhausted the patients. In one case, the hernia came down, and the patient was operated on with the plug. In the other, it induced a large amount of exudation, and thus apparently closed the opening. But in neither case did the operation succeed, as contemplated by Dr. Chisholm, and there can be no greater fallacy than to suppose that wires will not induce suppuration.

## CASES.

1. D. L,—aged 35, Maltese sailor, admitted on 26th May, 1865, with reducible inguinal hernia of right side. The operation was performed on the 2nd June, 1865, and he was discharged cured 24th July. He was previously tested in the usual way.

2. Baruk Sing, a Hindoo, aged 50, admitted on the 12th July, 1865, with incarcerated inguinal hernia, which was reduced with some difficulty. The patient was old and weak. The scrotum thickened. He was operated on, on the 18th July, and discharged, apparently cured on the 20th August.

3. Nujecboolah, aged 32 years, Mahomedan Khalassie, was admitted 15th September, 1865, with inguinal hernia of right side. The operation was performed 20th September, and he was discharged, cured, on 18th October. The hernia, in this case, was of five years' duration, the ring large, admitting two fingers with ease; it was caused by lifting a heavy weight.

The invagination partly came down after the operation, but the hernia did not descend.

4. Soroop Condoo, a Hindoo cooly, aged 40 years, admitted 11th October, with inguinal hernia of the left side. The protrusion was very large, and was of many years' duration. The ring admitted three fingers. The operation was performed on the 16th October. Plug removed 20th October. There was slight peritonitis in this case. The operation was unsuccessful, for both invagination and hernia came down. He was discharged on the 6th November, 1865.

5. Dinoo, a Hindoo cooly, aged 40, admitted on the 22nd October, 1865, with hernia of the right side. Operation performed on the 26th October, discharged cured 19th November. The hernia was recent, and of moderate size, the ring admitting only one finger.

6. G. B,—an English clerk, aged 33 years, admitted 30th October, 1865. Operation performed on the 16th November. Discharged relieved, 27th January, 1866.

He was admitted with hernia in a state of incarceration; it was reduced. He subsequently had an attack of dysentery, from which having recovered, the operation was performed. The hernia was large, and though not cured, it was rendered manageable with a truss.

7. J. B,—aged 20 years, French sailor, admitted on the 28th December, with reducible inguinal hernia of the right side. Operation performed, on the 1st January, 1866. Plug removed, on the 4th January. Discharged cured, on the 21st January, after being put to the severest tests—such as climbing up a pole, carrying heavy weights. In this case, the hernia was quite recent, caused by muscular exertion, and the inguinal ring admitted one finger. The integument remained invaginated. He was re-admitted three months later for an injury of his head, and a dislocation of the femur, caused by falling, when intoxicated, from the roof of a house. He died of those injuries, and on examination the internal abdominal ring was found to be completely closed by firmly organized connective tissue. Death was caused by extravasation of blood into the brain substance, and diffused suppurative cellulitis of the injured limb. The *post mortem* appearances have been more fully detailed in a previous notice of the case.

8. Gopaul, aged 34, a Hindoo Bhisty, admitted, on the 5th January, 1866, with a large inguinal hernia of the left side. It had been mistaken for hydrocele. The hernia was reduced with some difficulty, and the operation was performed on the morning of the 6th January. The plug was removed on the 8th January. In this case, the invaginated scrotum partly sloughed. The ring was very large, and the hernia recurred after the wounds had healed, but it was less in size, and much more manageable with a truss. He was re-admitted two months later with the hernia strangulated at the internal ring; was operated on for the strangulation, and, recovering, was discharged, on the 16th March. He did not return after this.

9. Derajut Oolah, aged 45, Mahomedan Peasant, admitted on the 8th January, with a small inguinal hernia of the right side. The ring admitted one finger. Operation performed on the 14th January. Plug removed on the 17th January. Discharged cured on the 14th February. He was fairly tested before discharge.

10. Nazir, aged 35, Mahomedan Butcher, admitted on the 20th April, 1866, with strangulated inguinal hernia of right side. The stricture was divided, and he recovered. The wound having healed, the plug was introduced on the 10th May, and removed on the 13th May. He was discharged cured on the 1st of June. In this case the hernia was of seven years' duration, and the ring was large enough to admit one finger. The invaginated scrotum remained *in situ.*

11. Bashoolah, Hindoo, aged 28 years, admitted on the 17th June, 1866, with strangulated inguinal hernia of right side. The structure, at the internal ring, was divided on admission. The wound having healed, the plug was introduced on the 2nd July, and removed on the 5th of July. He was discharged cured on the 19th of July.

In this case the hernia was of five years' duration. The ring was clear and well defined, and admitted two fingers. The invaginated scrotum came down, but the hernia did not protrude; he was tested before being discharged.

12. C. R,—aged 23 years, East Indian, admitted 17th July, with a small hernia of the left side. The ring admitted one finger with difficulty. Operation performed on the 22nd July. Plug removed 24th July. Discharged 14th August. In this case the hernia was of two years' duration. Before being discharged he was tested by climbing a pole, carrying weights.

13. L. D,—aged 32, an English engineer, admitted 8th August. Had been operated on twice before in 1859 for hernia of the left side by Wützers' method. The second of these operations proved successful, and he was discharged cured—wore a truss for six months. The hernia did not recur for four years, when it was brought down by an injury caused

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by his being thrown against the pummel of a saddle, in Australia.

He progressed favourably after the third operation. On the 6th of August, 1866, he was tested, and appeared to be cured. A severe attack of dysentery supervened, and owing to the straining and weakness caused by this disease, the rupture recurred. On the 12th January, 1867, he was operated on for the fourth time. The plug was removed on the 15th January. The invagination came down, but the canal seemed to be closed by a mass of exudation. He was discharged cured, after being severely tested on the 15th February, 1867.

14. E. W. H,—aged 35 years, Englishman, mate of a ship, admitted, 11th January, 1867, with inguinal hernia of right side, of about ten years' duration. The hernia was of moderate size, and the ring admitted one finger easily.

He was operated on, on the 11th January; plug removed on 14th January; and he was discharged on 7th February. As the needle perforated the abdominal wall in this case, some clear fluid escaped, and again on removing the plug a quantity of turbid serum followed it; about four ounces were collected. This showed that the opening communicated with the peritoneum. No symptoms of peritonitis occurred throughout the course of treatment, the wound cicatrized, and he was apparently quite cured when he left. He wrote to me from Ceylon some time after, and said that, notwithstanding all the work and exposure, the hernia had not returned.

15. W. B,—aged 23, West Indian, steward of a ship, admitted 15th February with a bubonocele on the right side, of one month's duration. Operation performed on 27th February according to Dr. Chisholm's plan; that of tying the pillars of the ring with silver wire. The wire was left, it excited very profuse suppuration; this subsided after some time, and the wound healed. He was discharged, apparently cured, on the 5th April. The canal obstructed by a mass of exudation. I doubt whether this will prove to be permanent.

16. Dwarka Nath, a Hindoo oilman, aged 28 years, admitted 22nd February with a large inguinal hernia of the

right side of five years' duration. The ring admitted two fingers easily. The operation was performed on the 25th February, by the same method as in the preceding case. Suppuration followed very freely. The wound healed, but the hernia subsequently descended. He was operated on with the plug in the usual manner on the 11th March, the plug was removed on the 14th March. In this case the plug ulcerated through the invagination, and the finger could, after the removal of the plug, be passed through the opening up to the internal abdominal ring, where a mass of exudation seemed to close the opening. He recovered and is still in the wards (10th April.) The hernia does not descend but from the impulse in coughing, I am doubtful as to the ultimate success of the operation. The results of these two operations with the wire do not incline me to repeat the proceeding. In neither case was success complete, and so far from suppuration not occurring it was more profuse, although silver wire was used, than in the cases operated on, with the plug and silk ligatures.

17. Ram Coomar, a Hindoo servant, aged 30, admitted on the 27th February with a very large inguinal hernia of the left side of eight years' duration. The ring admitted two fingers with ease. The operation was performed on the 5th March. The plug was removed on the 10th March, suppuration extended between the abdominal muscles, and erysipelas supervened in the cellular tissue of the thorax and axilla. Free incisions were made, and he was treated with Tr. Ferri. Sesquichlorid, nutrients, and wine. There was no peritonitis, nor any sign of abdominal mischief. He died with pyæmic symptoms on the 26th March, 1867. The lower lobes of both lungs were found to be consolidated,—one large pyæmic, (embolic) patch in the upper lobe of the right lung. Heart contained fibrinous clots in right cavities.

The operation had not succeeded; the inner ring was not closed. The inner and outer rings had in this case been dragged so close to each other, that in introducing the needle during the operation, it had passed beyond the inner ring and perforated the peritoneum. There was not, however, a trace of peritonitis. A coil of intestine which lay near the ring had contracted adhesions to the peritoneal surface. I suspected, during the operation, that the peritoneum was punctured, as a quantity of serum escaped when the needle traversed the abdominal wall. Such was also the case in E. W. H's. operation, where the discharge of peritoneal fluid continued for some time. He perfectly recovered, and without any symptom of peritonitis.

18. Mr. C,—aged 43, slight but muscular and healthy, was operated on for reducible inguinal hernia of the right side on the 17th February. The hernia was not large, and the ring admitted one finger easily.

The plug was removed on the 21st February at 5 P.M., and on the 3rd March he was to all appearance perfectly cured. This is the most rapidly successful case I have known.

Operated, on February 17th.
Plug removed, February 21st.
Recovery, March 3rd.
Total 15 days.

19. M. G,—aged 42 years, an English seaman, admitted 4th March, 1867, with inguinal hernia of the right side, of four months' duration. The protrusion moderately large.

The operation was performed on the 13th March. Plug removed on the 16th March. Discharged on the 11th April. In this case there was cough after the operation, and the hernia recurred. The operation failed.

20 Moodosudhun, a Hindoo, aged 35 years, admitted on the 11th March, with inguinal hernia of the right side of five months' duration. The tumour was of moderate size, one finger entered the ring with ease. The operation was performed on the 16th March. Plug removed on the 18th March. He was discharged cured, after being tested, early in April.

The results of these operations are, on the whole, satisfactory, for out of the twenty, fourteen are returned as cured, and six relieved or failed. Fifteen cases were of the right side; five of the left. In two cases, strangulation had occurred, and been removed by operation before the plug was introduced, and in one case death occurred from pyæmia caused by an attack of erysipelatous cellulitis.

I would again remark that the cases returned as "cured," were well tested before being discharged from hospital, and so recorded. Of the ultimate results I am unable to say much, as so few men return to tell us how they have been after the operation. I have recently seen a patient, employed on the railway, an Englishman, upon whom I operated four years ago, who continues perfectly well.

# FIBRINOUS COAGULA IN THE RIGHT SIDE OF THE HEART.

## No. XXXVI.

A Hindoo shop-keeper, named Indo Narain, aged 38 years, was admitted into hospital on the 27th March, 1867, suffering from a deep sinus running under the gluteal muscles. He gave the following history of his case:—About a year ago he had a bubo in each groin, that suppurated and was opened. The wounds were healing, when about two months later a swelling appeared in the lower part of the right gluteal region. This was opened, and a quantity of pus and blood evacuated. The sinuses in the groin healed, that in the gluteal region continued to discharge. Never had syphilis, but admitted having had gonorrhœa four years ago. Gave no explanation of the occurrence of the inguinal bubos. He was a sickly-looking man, but in tolerably fair condition. Seemed to be suffering much from the sinus which was situated at the lower margin of the right gluteal region, and through which a long probe passed for four or five inches under the Gluteus Maximus, away from the bowel, with which it seemed to have no connection. As pus appeared to lodge, and as the discharge was also profuse, and the end of the probe when pressed came so near the surface as to be felt beneath the skin, I made a counter opening, and to encourage the outward drainage of pus, drew a tape, to act as a seton, through the whole length of the sinus.

The following are the notes of the subsequent progress and termination of the case.

28*th March.*—He is feverish; sinus inflamed.
Saline diaphoretic every three hours.

29*th.*—Still feverish; bowels open; tongue clean.
Saline as before.

30*th.*—No fever; discharge tolerably free; removed the seton. To have quinine. A pad and bandage over the sinus.

30*th.*—Fever again since noon yesterday, preceded by rigors.
Salines.

31*st.*—No fever to-day; very little discharge. Crepitation as of emphysema felt in the gluteal region. Tongue moist; pulse weak. Deep fluctuation below the great trochanter. An incision gave exit to some fœtid pus and gas.

1*st April.*—Discharge still fœtid and thin; pulse weak and soft; no appetite. Incision enlarged.

℞. Decoct. Cinchon. ℥i.
Tinct. Cinchon. ʒi.
Ammon. Sesquicarb. gr. v.,
every four hours.

Brandy frequently and beef-tea.

Vespere. Pulse 108, feeble; had fever during the day.

2*nd.*—Pulse 112, respiration 103; tongue moist and clean; bowels open, complains of pain in the thigh of the affected side. It is swollen. Discharge from the opening of the same aspect as yesterday. Respiration hurried.

Continue all as yesterday.

11 A.M. Vomited frequently; much depressed; breathing hurried; pulse feeble.

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4 P.M. Is unconscious; respiration very rapid; cold sweats; pulse almost imperceptible.

Died shortly after.

*Post mortem* following morning. *Thorax.* Left lung much congested. Right lung contained a small tubercular cavity at its apex. No pyæmic patches. No pleuritic effusion. The right auricle and ventricle of the heart completely stuffed with firm fibrinous coagula, extending into the pulmonary arteries.

Left lobe of the *liver* much enlarged; its substance soft and fatty.

*Spleen* much enlarged; *kidneys* flabby and capsule easily detached.

The sinus was laid open; it ran under the Gluteus Maximus, and had no communication with the bowel. The tissues in the neighbourhood were in a state of decomposition.

## REMARKS.

The fatal termination of a case of this kind, apparently so simple and unimportant, is well calculated to impress on one the fact that dangers of the gravest character may result from surgical operations and proves not only how important it is that everything connected with the hygienic condition in which the patient is placed should be duly considered, but that his individual peculiarities should also be studied. It has been truly said that, taking the average results of all operations into consideration, a patient who is placed on the operating table undergoes greater risk than that to which a soldier is exposed in the most sanguinary battle, and this probably rather understates, than exaggerates, the danger. The immediate perils are by far the least important, and the mortality arising from them is infinitely less than that from the more remote and secondary accidents to which surgical patients are liable, and whose importance and influence on the death-rate after operations and accidents have been more and more studied and appreciated since Dr. N. Chevers, then a young physician of Guy's Hospital, drew attention to them twenty-five years ago. No subject, probably, has been more investigated of late years than this, and a vast amount of information has been collected, and light thrown on the subject, by German, French, and English pathologists.

The tendency, however, it appears to me, in the present day, is to attach too much importance to causes external to the individual, such as defects of hospital hygiene; and too little to individual peculiarity; though to deny the influence of the former or its due share in causing the mortality in question, would be to reject evidence that is simply incontrovertible. So far from undervaluing it, I regard the question of hospital construction as one of the greatest importance, and which, if neglected, must be attended with the worst results to surgical patients. But I am satisfied that, when all has been done, that science and experience can dictate as essential to the perfect construction of a hospital, or of a single ward, much still may remain in the patients themselves, that will go far to frustrate our best endeavours, and interfere with success; and that, do what we may to ensure their well-being, a certain class of blood diseases, resulting from changes in both the vascular and nervous systems, will, in a certain proportion of cases, still occur. That these will be less frequent, when the hygienic conditions, under which the patient has previously lived and is actually placed, are favourable, there can be no doubt; hence the urgent necessity of insisting on the most perfect hospital accommodation that can be obtained. It is equally necessary that the condition of the individual should also be known, for on the integrity of his vital organs, not less than on the position in which he is placed, depends the issue of an operation.

Of the large group of pathological conditions by which death is caused after surgical operations and accidents, it would be interesting and profitable, for our future guidance, to ascertain, why one should prevail in a certain hospital or locality, whilst in another, perhaps apparently similarly situated, a different class set the surgeon's efforts at defiance; why, for example, in one hospital gangrene? in another erysipelas? in a third pyæmia should prevail? These conditions are, no doubt, closely allied to each other, and the discrimination might not be of any great practical importance, unless it enabled us to do away with the evil; but still any light thrown on the subject would be valuable, and might lead to a better appreciation of the real nature of ochletic disease.

I have in former communications adverted to the great mortality that exists in Calcutta hospitals, and especially in that of the Medical College, from blood poisoning after surgical proceedings and wounds, and I have called attention particularly to the great tendency to one form of disease by which this fatal toxæmic condition is engendered. I am unable to explain why it is that, although we may cut the soft parts with comparative impunity, the section of a bone is so frequently followed by purulent infiltration of its medulla, so that the slightest operation involving the division of bone is dreaded as a probable cause of pyæmia, but such unqestionably is the case. I am, indeed, inclined to believe that this osteo-myelitis is a more frequent pathological condition than has been generally supposed, and that many deaths due to it have been, from the obscurity of the symptoms, attributed to other causes. The so-called pyæmia is no doubt the actual cause of death, in these cases of osteo-myelitis or pyelitis, just as it is in others where the septic condition has been engendered even when the bones have not been interfered with at all; it is only when the cause of the blood-poisoning is sought for by making a section of the bone after death or amputation, that it is discovered, should the condition of the medulla have been overlooked during life, as it may have been, owing to the bone being hidden in the enveloping soft parts.

But there is another pathological condition which is of frequent occurrence, and to which I am satisfied that, as an immediate cause, death, in a surgical patient, is frequently due. It is a frequent result of blood-poisoning, or of such pathological conditions as, from any cause, give rise to a state of hyperinosis. We are very familiar with it in many diseases, and it frequently is the last act in a series of changes that are incompatible with the continuance of life; but it is not only in conditions of extreme debility, exhaustion and toxæmia, that it occurs, it frequently supervenes before these conditions have been established, and of itself rapidly destroys life.

The formation of fibrinous coagula in the cavities of the heart, or in the great vessels, is the condition to which I allude, and more particularly to that form of it, which takes place in the right side of the heart. This is a condition which we know is liable to occur in the later stages of many diseases, and probably it is the actual cause of death in many, being itself due to the altered and hyperinotic condition of the blood; perhaps to some extent, to the diminished vitality of the tubes and cavities in which it circulates, and to altered or defective nerve force. It is not only to its occurrence under these circumstances that I now allude, but to the fact that it is a danger to be apprehended after any severe,—indeed not always severe,—operation or injury, and may occur independently of those signs which indicate the toxæmic state of the blood we so frequently see in hospital patients in large cities, where not only are the hygienic conditions defective, but the people themselves are anæmic and wanting in vital energy. It is right, therefore, that this source of danger should be borne in mind, and that in any case where a tendency to exhaustion or anæmia exists, particular attention should be paid to the diet, and administration of such remedies as may tend to improve the spanæmic condition, which we may fairly assume to exist when these symptoms appear. In the preparation of patients for an operation, as well as in their treatment afterwards, it should be borne in mind that iron and nutrients should be freely given to improve the condition of the blood. Hypo-sulphites, according to Polli; Alkalies, according to Richardson and others; the former to limit the development of poison germs; the latter to obviate the tendency in the blood to clot. Above all, plenty of fresh air, to oxygenate the blood and tissues. Such no doubt are the measures of a therapeutic and dietetic nature, from which we may hope to derive benefit, and in these are implied not only proper aliment, but all favourable hygienic conditions. In many cases, the supervention of this embolic condition of the right side of the heart, is the precursor of speedy death, but not necessarily always so, and doubtless a certain amount of clotting is frequently recovered from, or its effects are seen in a secondary form in the changes which occur in the lungs, as the result of the capillary embolism to which its débris may give rise. In those cases where it proves fatal, the end is speedily brought about by the rapid and sudden withdrawal of blood from the pulmonic circulation, syncope, or cardiac apnea closing the scene. The earliest symptoms of weakness, failing pulse, coldness of the extremeties, with rapid action of the heart, pallor, or lividity and hurried respiration, should receive due attention, and in some cases, I believe, that, provided no other changes have occurred in the viscera, as a result of septic absorption or embolism, the timely administration of remedies, such as I have indicated, may avert the danger and save life.

The case I have noted here is a sufficiently illustrative example of the conditions I have been describing. It is true, there were *post mortem* evidences of visceral changes of a chronic nature, but they were principally such as tend to induce the condition in which fibrinous clots are most likely to form, by interfering with the due elaboration and development of healthy blood: For if there be any one condition more than another unfavourable to the healthy development of blood, it is that disordered state of the blood-making organs so frequently found in this and all malarious countries. It is, I believe, only right that in estimating the respective value of the various causes by which life may be endangered or lost, after surgical operation, that we should take the malarious state of the climate, and its effects on the people into consideration; and, whilst we admit that much of the mortality may be due to intrinsic causes, we feel strongly, the more than ever paramount necessity of having hospitals to treat such people in that will, at least, place no obstacle in the way of their recovery.

# FATTY DEGENERATON
# OF THE
# MUSCULAR FIBRE OF THE HEART.

## No. XXXVII.

In former communications I have described some of the causes of death which are due to pathological conditions, developed after surgical operations, and which are more or less influenced by certain circumstances external to the patient. I now wish to notice another pathological change, which is of great interest to the surgeon, and requires his attention in considering the question of operation upon certain individuals. The accompanying abstract fairly illustrates the symptoms, progress, and results, of a case in which the disease existed. There can be no doubt, I think, that when this degeneration in the structure of the muscular tissue of the heart has set in, and especially when it has made any progress, that the subject of it is much less capable of bearing the shock of an operation, and of rallying and effecting repair of the wound afterwards, than one who has the heart free from this fatty metamorphosis. I am not aware that there are any signs that can be pointed to as absolutely pathognomonic of the disease, no doubt in many cases it is sufficiently evident from changes going on elsewhere, which point to a general degeneration of all the tissues; but it may exist in men of advanced years, who have otherwise the appearance of robust health, and who only manifest the weakness which has insidiously crept on, when any sudden or emergent demand is made on the vital energy, and the heart's action. Such Mr. Paget has said, "may be fit for all the ordinary events of calm and quiet life, but they are unable to resist the storm of a sickness, an accident, or an operation." *(Surg. Pathol.*, p. 98).

This pathological state is not a mere increase of the fat, which, to a certain extent, naturally exists about the heart; it is not simply a deposit of adipose matter in the connective tissue which lies between the muscular fibre, or connects the pericardium with the subjacent muscle, though it may be that this state of pinguescence may so far intrude on the muscular structure as to destroy it by the atrophy resulting from pressure. It is not, in short, a fat, but a fatty, heart that I now speak of,—a condition in which fat not merely displaces, but replaces muscle, and where a true metamorphosis may be said to have taken place. The natural appearance of the banded or striped muscular fibre is lost, and for it is substituted a granular deposit of oily or fatty matter. It is not my purpose to speak of the effects of the pathological change generally, nor of the various ways in which it may cause death, for, proceeding beyond a certain stage, fatal it must inevitably be; though, in a lesser degree, no doubt, it is often the cause of death in diseases, from which, under other circumstances, the patient might have recovered. My object is to direct attention to it as a cause of failure in surgical operations, and the obvious necessity, therefore, of endeavouring to ascertain its presence by any sign, and, if possible, so to improve the condition of the patient, as to enable him to support what he has to undergo, or, if needs be, to warrant the surgeon in altogether declining an operation, that, under the circumstances, incurs too great a risk of life, or offers too little prospect of success to be justifiable. Among the numerous points to be considered in deciding the question of a surgical operation, none is of more importance than the subject now under consideration, and attention should be carefully directed to the subject in all cases, where it appears probable that this degeneration may be going on.

As I have already remarked, in some persons there is enough in their general condition to make us suspect the presence of this degeneration of the heart's muscular fibre. The wasted flabby muscles, the arcus senilis, grey-hair and general debility, with a feeble, perhaps slow and irregular pulse, hurried respiration, and weakend heart sounds—all significantly suggest the changes that are going on.

But there are cases in which, notwithstanding the absence of these indications, the heart may be the subject of fatty degeneration, and though quite equal to the ordinary emergencies of life, yet be unfitted for the strain thrown upon it by a surgical operation or severe wound.

I am not aware of any symptom by which we can certainly diagnose such cases, and it is only by watching and carefully noting the state of the patient, both before and after the operation, that we can arrive at his real condition. In persons advanced in life, with a tendency to adipose deposits generally, though otherwise hale and robust in appearance; with a pulse perhaps rather slower than usual, for the period of life (say 50 to 60 years of age) occasional vertigo, perhaps, a fainting fit after some slight exertion, or change in the weather ; a general want of tone ; loss of appetite and spirits with imperfect sleep at night, and a feeling of dyspnœa or malaise about the thorax, our suspicions are aroused. Such are the indications that would call our attention to the heart's action, direct our observation to its rythm and sounds, especially to that of its diastole, and make us postpone any impending surgical proceeding, such as the removal of a calculus, or the ablation of a tumour, or would warn us not to interfere at all in a case, where the operation was not one of necessity or for the preservation of life. It would also indicate the necessity for an invigorating diet, and the administration of tonic and strengthening remedies, by which, not only tone might be imparted to the impaired muscular fibre, but force to the nervous energy. It would warn us to be more than usually careful in the administration of chloroform, and to save loss of blood or protracted shock during an operation as much as possible. It would also add to our anxiety after the operation, and make us less hopeful of a successful result; it would urge the necessity for the most watchful care, when any symptom of exhaustion or debility gave rise to the inference that the weakened heart was beginning to fail under its extra labour; and it would insist on the necessity for support of every kind.

## CASE.

Ram-pershad, aged about 60 years, a Hindoo sweeper, from Oude, but many years resident in Bengal, was admitted on the 15th February, 1867, into the Medical College Hospital, for the treatment of elephantiasis of the scrotum, from which, he stated, that he had been suffering for the last ten years. It began with an attack of fever in Calcutta, the scrotum enlarging and becoming painful. This state of things recurred at periods of three months during the first seven years, the fever and swelling lasting for a day or two, then subsiding, but each attack leaving the scrotum somewhat larger than before. During the last three years, its growth has been more rapid, and the recurrences of fever more frequent; but for the last four months he has had no fever, and hearing of the removal of tumours of this nature, he came to submit to surgical treatment. He was a fine stout healthy man, looking about sixty years of age, with white hair, general good health, no fever, pulse moderately good; heart's sounds natural in rythm, but not heard very distinctly beneath the layer of adipose tissue covering the thorax. Had a large scrotal tumour, reaching nearly to the knees, which appeared solid and heavy.

Urine examined; no albumen. Sp. gr. 1020.

He was placed on a mild and nutritive diet on admission, and watched for five days.

On the 20th February, the tumour was removed in the usual way, by a vertical incision made down to the penis, through which that organ was detached from the mass, and held upwards; a second and third over the cords, by which each testis and cord were similarly reflected, and then a series of circular sweeps with the scalpel, to detach the tumour from the perineum. Twenty-six bleeding points were ligatured. The testes were healthy, and there was very little blood lost—eight ounces at the most. He bore the operation, the cutting part of which lasted about one hundred and fifty seconds, and the ligaturing of the vessels about five or six minutes, well; his pulse was fair when removed from the table. Under chloroform, he did not feel the operation. He had an opiate directly after, and was ordered milk and sago with some brandy. Like most men of his caste, he was accustomed to stimulants, though not in excess, and animal food.

6 P. M.—When warm in bed, thirteen more ligatures had to be applied as he lost a little blood from fresh bleeding. After this he vomited several times and felt weak.

21*st.*—Better; no more bleeding; tongue moist; vomiting ceased; bowels confined.

Continue a nutritive diet.

22*nd.*—No hæmorrhage; did not sleep well; takes his food poorly; bowels acted once.

23*rd.*—Bowels acted; pulse rather better; some appetite.

6 P.M.—Pulse feeble, 120 ; no fever. Bowels slightly loose ; tongue moist ; has hiccup ; stimulants ; mustard poultice to epigastrium ; astringents for the diarrhœa.

It is not necessary to detail the daily progress. He gradually became weaker, never thoroughly rallied, and had occasional hiccup ; diarrhœa—sickness—weak and irregular pulse, and depressed appearance, and dyspnœa. Towards the end rapid breathing with a feeble pulse, and very weak heart sounds, supervened ; the breath sounds being on the whole natural. He had no pyrexia, indeed the temperature was rather below the natural standard. At times he rallied so far as to make us think he would recover : all the time the wound looked well, and before his death considerable progress towards repair had been made. On the 23d March, after some hours of hurried respiration, with cold skin and rapid pulse, the thorax being resonant and the breath sounds natural, he died.

On examination of the body we found that there were large deposits of fat generally, and the heart was very fatty and flabby. The muscular fibre under the microscope presented a granular oily appearance, the natural structure being almost altogether absent. The wall of the right ventricle was unusually thin.

In the right venticle was a firm white fibrinous clot, which extended far into the ramifications of the pulmonary artery. The formation of this clot was, no doubt, the immediate cause of death.

In this case the heart though equal to the ordinary emergencies of life, enabling the patient to maintain a stout and vigorous, though somewhat obese state of body, was unequal to the call made upon it after the operation. It gradually failed, and the supervention of a variety of signs of exhaustion indicated its inability to maintain a vigorous circulation, such as was needed under the circumstances to enable the patient to rally from the shock and effect repair. It continued to fail until finally cardiac embolism precipitated the fatal event.

# FRACTURE OF THE RIBS WITH INJURY OF THE CONTENTS OF THE THORAX.

## No. XXXVIII.

THE group of cases, short notes of each of which, by my House Surgeon, Baboo Gopal Chunder Roy, are appended, is of considerable clinical interest, illustrating some prominent symptoms of injury of the contents of the thorax emphysema, hæmoptysis, pneumo-thorax, and collapse, or congestion of the lung. Four of the five cases recovered, the fifth terminated fatally. The treatment was of the simplest character, amounting to little more than placing the parts in a state of physiological rest. In one favourable, and in one fatal case, venesection was practised, and although only one recovered, yet there is no doubt it was of benefit in both, for it gave relief, if it did no more. I need hardly say that blood was not taken with a view of directly influencing the inflammatory symptoms which naturally might be expected to result from so severe an injury to the lung: for that purpose I would not, necessarily, have abstracted a drop of what could so ill be spared. It was a choice of evils, and was adopted for the purpose chiefly of relieving dyspnœa and the embarrassed state of the pulmonary circulation in the congested, but otherwise sound and uninjured, lung. In both cases it afforded relief, and in the first, I believe, it saved the patient's life, for when it was performed not only the pulmonic, but the systemic circulation was much embarrassed; the livid tint of the skin and lips, and great prostration showing that such was the case. It was therefore, that I chose the least of two evils,—the debility likely to arise from the loss of a certain amount of blood, to avoid the greater evil of suffocation; and I have no doubt that the practice is likely to be satisfactory in result, as I believe it to be correct in theory. I think that instances are not rare where the judicious removal of a certain amount of blood, though in itself, in the abstract, an evil, may be productive of good, by relieving venous engorgement, and thus communicating activity to the over-burdened and labouring circulation. It will not be understood from what I now say, that, as a principle, I advocate the general abstraction of blood in inflammation; I hold no such theory, the cases in which I advocate its use are not all inflammatory, and the object is rather of a mechanical, than of a vital nature. No doubt the reaction against venesection has been over-vigorous, and it is very possible that, in some cases, the abstraction of a certain amount of blood from the general circulation may be useful; but such cases are probably rare, the exception now, as they were considered to be the rule in former days. But if the loss of a small quantity of blood may be attended with beneficial effects, I think that we should not hesitate to avail ourselves of so potent a remedy, when its necessity appears to be indicated, simply because it is the loss of so much of the vital fluid. We are not so particular as to its results on other occasions; and though most capital, or protracted operations, or severe wounds are attended with the effusion of several ounces of blood, yet we do not particularly, perhaps not sufficiently, take the loss of blood into account in the subsequent condition and treatment of the patient, and I really believe that, as to a man in a fair ordinary state of health, the loss of a few ounces of blood is not of any great or lasting importance; we should not hesitate to take it if good appears likely to result. Therefore, whilst, as a general rule, I believe general bleeding to be unscientific and unnecessary in the treatment of inflammation, I am quite prepared to admit, that special conditions may arise of congestion or inflammation, in which it may not only be useful but necessary. In such cases stimulants and nutrients would probably be required and administered, even whilst the blood was flowing; such was the practice in the cases here recorded.

## CASE I.

*Fracture of the ribs; Emphysema; Pneumo-thorax; Collapse of the injured lung. Injury caused by a fall from a tree.*

Shekh Fyzoo, aged about fifty years, a Mahomedan coachman, admitted on the 25th March, 1866, having fallen from a height of about twenty feet to the ground. The left ribs from the third to the eighth inclusive, were fractured, the line of fracture extending downwards from the nipple. There was great depression from the injury, extensive emphysema of the thorax, neck, left arm, and abdomen. The left side of the chest was tympanitic on percussion; the pulse weak, and the breathing very difficult, but no hæmoptysis. Diffusible stimulants were ordered to be given frequently: hot bottles to the limbs and trunk. He was supported on pillows in the sitting posture, not being able to lie down.

26*th.*—Pulse still very feeble, skin cold, lips livid, dyspnœa severe, loud mucous râles with the respiration. Venesection ℥ viii. from the right arm. The stimulants to be continued as before.

27*th.*—The pulse still feeble after the bleeding; but the breathing easier; temperature 99°. Large crepitation audible.

28*th.*—Rather better; pulse 128; respiration 36; easier temperature 101°.

*29th.*—Pulse 100; respiration 36; temperature 102°; expectoration purulent. The air now enters the lung freely.

*30th.*—Much better; less cough and expectoration; emphysema disappearing; and strength returning. A simple cough mixture ordered containing.

Tr. Camph. Co.

*2nd April.*—Expectoration and cough much diminished; no pain; respiration clear on both sides. Continue medicine and diet. He gradually gained strength, and was discharged cured on the 19th April.

## CASE II.

*Fracture of ribs; Emphysema; Pneumo-thorax; Wound of the lung. Injury caused by a fall from aloft on board ship.*

J. R ———, an English sailor, admitted 27th April, 1866. Fell, on board his ship, from a height of twenty feet, and fractured the fourth rib on the left side near its costal cartilage. There was much pain, dyspnœa and pneumothorax with considerable emphysema of the left side of the chest. There was no blood in the sputa. He progressed favourably, had no fever and only slight cough, which was modified by the use of the Tinct. Camphor. Co: He had a bandage round the thorax, and was kept at rest in bed with a nutritive, but unstimulating diet. The rib united, and emphysema disappeared; the breathing on both sides became natural, and he was discharged cured on the 17th May.

## CASE III.

*Fractured ribs; Emphysema; Pneumo-thorax; Wound of the lung. Injury caused by falling down stairs.*

Bahadoor Khan, aged twenty-five years, a Mahomedan servant, admitted on the 18th April, with fracture of the anterior portion of one or two ribs on the upper part of the right side; caused by falling downstairs. There was much pain and dyspnœa with emphysema of the right side of the thorax. No blood in the sputa. Percussion note about the seat of fracture was somewhat tympanitic, but respiration was audible in the affected lung; pulse feeble; slight cough. Bandage round the thorax; simple cough mixture; salines when feverish; moderate diet.

28*th April.*—Doing well; no cough; emphysema gone.

3*rd May.*—Ribs united; percussion note clear on both sides. Respiration natural.

12*th.*—Discharged cured.

## CASE IV.

*Fracture of ribs; Injury of lung; Pneumo-thorax; Emphysema. Injury caused by compression of the chest between the buffers of two railway carriages.*

Mahomed, aged fifty years, a Khalassíe, admitted 23rd November, 1866, with fracture of three ribs, 4th, 5th, 6th, caused by pressure between the buffers of two railway carriages. There was extensive emphysema of the right side of the chest; great dyspnœa and bloody expectoration; pneumo-thorax on the right side.

25*th.*—Emphysema extended to the right side of the neck and face, as far as the eyelid. Respiratory murmurs faint; dyspnœa and bloody expectoration; Cough mixture; simple diet.

28*th.*—He is better; no fever; emphysema disappearing; breathing easy; cough less troublesome.

6*th December.*—No emphysema; slight cough; muco-purulent expectoration. Breathing nearly natural; bones united.

17*th.*—Discharged cured.

## CASE V.

*Fracture of ribs; Laceration of lung; Emphysema; Death. Injury caused by a kick from a horse.*

Sibook-ram, aged fifty years, a Hindoo servant, admitted 1st April, 1867, with fracture of several ribs on the right side, caused by a kick from a horse. The axillary region depressed. The integument of the thorax neck and face distended by emphysema. Extremities cold; pulse feeble; respiration very painful and hurried; no hemorrhage.

Respiration on the uninjured side is puerile and attended with mucous râles. He is much depressed.

Stimulants and warm fomentation; rest in recumbent posture.

*2nd April.*—Pulse 96, feeble; respiration 40; temperature 100°; blood in the sputa. Emphysema extending; noisy mucous râles; cough troublesome.

*3rd.*—Pulse 128; respiration 28; temperature 104°; emphysema still extending.

Saline and Stimulants.

*4th.*—Pulse 136; temperature 104°.

*5th.*—Dyspnœa worse and pulse feeble; much congestion of the left lung, dulness all over right side; the lung partially, if not altogether, consolidated. Took eight ounces from his arm; he felt easier as the blood was flowing, but the improvement was only temporary, for on the following day he became worse. Again the breathing became very rapid; pulse feeble; and he died at midnight.

On *post mortem* examination the 2nd, 4th, and 5th ribs of the injured side were found to be broken about the middle; one end of the 4th rib penetrated the lung; the right lung was consolidated and adherent to the parieties; the pleura much thickened; the middle lobe was lacerated to the extent of two inches; blood was effused into the thorax, the lung itself being engorged ; the left lung was congested at the base.

This was a very severe injury; the shock was great, and the patient was an infirm man.

# PERINEAL SECTION.

## BY DR. FAYRER.

*Read on the 14th July* 1863.

The following case of organic stricture of the Urethra, treated by division through the Perineum is, I think, of sufficient interest to justify me in relating it to the Society. —It is an excellent example of the success of the mode of treatment advocated and, indeed, first devised by Professor Syme, of Edinburgh. Inasmuch as the stricture was uncomplicated by fistula in Perineo or any other modifications of the disease, which might in the opinion of some Surgeons have rendered the Perineal Section desirable, irrespective of he stricture. It is not necessary that I should remind you, that many other methods of treating strictures by operation have been practised and recommended as efficacious in causing a permanent cure of this very troublesome and often dangerous disease. I may simply state that, of these various methods, whether by dilatation, internal incision, tearing, or cauterization, none appear to prove more, if so speedily and safely efficacious, as the method in question. It certainly has the merit of simplicity, and the advantages, whatever they may be, of a clean incision, over the obvious dangers of laceration, cauterization or internal section and the probable consequent infiltration of urine or perineal abscesses, to say nothing of the dangers of some extensive mischief resulting from deeper extravasation of urine, or the constitutional disturbance resulting from the operations themselves.

I do not wish you to suppose that I recommend these operations as the proper treatment for all strictures—far from it—many, it may be the majority, are amenable to a much simpler mode of treatment, that of the so-called dilatation by the passing of gradually increasing sized bougies through the stricture. But for those cases of rigid, obstinate, or irritable stricture with, or without Fistula in Perineo, such as have been and are still treated, by some authorities, by one or other of the methods I have alluded to, my conviction is that this is not only the most efficacious and most certain, but the safest mode of treatment, and those who have witnessed the immediate relief it effects, the painful efforts at micturition that were before so distressing removed, the irritation of the bladder, and the constant desire to void urine at once exchanged for ease and comparative comfort will, I imagine, concur in the opinion, that it is at least as good as any of the other methods of treatment. The objections that might be, and I believe have been, urged against it, anatomically and on the score of danger from hæmorrhage or extravasation, are without real grounds. For, though you cut through the most vascular portion of the urethra in its bulb, you need wound no vessel of importance; for, by keeping carefully in the middle line, you do not endanger the arteries of the bulb, which enter the sides and not the centre of the bulb. It is true you may have profuse oozing of blood from the divided bulb, but it is perfectly controllable by pressure, and seldom gives any trouble. I have never found it cause any serious inconvenience.

Stricture most frequently, if not always, lies in front of the triangular ligament, the necessity for dividing that structure in this operation, therefore, rarely if ever occurs; and, as you are careful to conduct the urine from the bladder through a curved tube, such as I here show you, inserted in the perineal wound, the danger of urinary infiltration is reduced to a minimum. I may observe that it is neither necessary nor desirable to keep the tube longer than 48 hours in the bladder, not longer, in fact, than may be necessary to glaze over the cut surfaces with lymph, and so prevent the probability of any urinary absorption by the cellular tissue or spongy portion over which the urine flows.

The mode of treatment is now so well known, that it is perhaps superfluous to describe the steps of the operation; but, as some of the members of the Association may not have turned their attention to this subject, I may briefly remind them that the operation consists in a simple incision made carefully in the central line of the perineum down to the stricture, which is then divided on a grooved staff previously introduced, and held firmly and steadily by an assistant, the patient being in a similar position to that in which you would place him were you about to operate for stone in the bladder. The incision generally extends from near the root of the scrotum to within an inch of the anus. The bulb is exposed, carefully divided in the central line, and the groove on the staff then being felt for, the stricture is cut by running the knife along it, until the whole is divided; every portion of the stricture being slit up until the sound urethra is reached. The staff is then withdrawn, and the curved tube passed into the bladder through the wound. In ordinary cases, the tube is removed, as I before remarked, in 48 hours, the urine being allowed to find its way by the wound. The following morning, the 3rd, it is well to commence passing an instrument, full sized, into the bladdder, and to continue doing so until the perineal wound has closed, which, in cases progressing favorably as the present one, takes place in from three weeks to a month. After the first excitement and re-action from the operation, the relief is remarkable, and it is expressed not more by the patient's statements than by his appearance.

The appetite improves; the sleep is more refreshing; the expression of countenance becomes hopeful and cheerful, and the distressing local symptoms of the stricture disappear. It is necessary to continue to pass a full-sized instrument for some time after the wound has healed, to obviate any possible tendency to contract, and here I may observe that too rapid closure of the perineal wound is not desirable.

I have seen several cases some time (months and years) after the operation, and there was no contraction, but still, I believe the precaution of passing an instrument occasionally is a good one, and should not be neglected. In stricture complicated with perineal fistulæ, whether the fistulæ communicate with the spongy portion of the urethra posterior to the scrotum, or in the more rare case of opening into the membranous portion, the argument in favour of the operation appears to me to tell even more strongly than in uncomplicated stricture. By laying the urethra freely open in the perineum, introducing a silver or flexible tube, and allowing the urine to flow through it, the tension is taken off the sinuses themselves, and, the stream of urine no longer finding its way by these abnormal channels, the fistulæ have the opportunity of contracting and cicatrizing, which, if they be not much indurated or very chronic, they readily are disposed to do. Synchronously with their contraction, the urethra being dilated by gradually increasing instruments, the perineal wound may be allowed also to close, the whole thus gradually closing in together, whilst, the natural calibre of the urethra being restored, the original cause of the fistulæ is removed.

It should be carefully remembered that the perineal wound must be kept open until either the fistulæ have cicatrized, or they evince evident indication that that process is about to be accomplished. In cases of old and numerous fistulæ, with the tissues of the perineum much infiltrated, the operation will be found very different to that performed on the sound perineum. The urethra appearing in the first instance sometimes to be at a great depth, and covered by indurated tissue differing widely from the ordinary coverings of the bulb in the sound perineum. In all cases, the great points are—to keep in the centre, not to cut too far back, and to divide the stricture thoroughly. The case that I have the satisfaction of bringing to your notice this evening, not only illustrates the operation itself, and the removal of the disease for which it was performed, but exemplifies the benefit it confers on a person who has long suffered from stricture of a most painful kind. That peculiarly irritable form in which there is a constant tendency, after temporary improvement, to recurrence of the symptoms in an aggravated form, and which is really totally unamenable to the simpler plan of treatment by dilatation. This had been tried more than once—he appears to have suffered, on each occasion, from hæmorrhage, rigors, fever, subsequent debility, and aggravation of the stricture. On admission here, dilatation was attempted, and a small instrument, No. 1 or 2 could be passed, but the smallest attempt to pass a bougie caused profuse hæmorrhage, and subsequent fever of a violent character, without any improvement in the condition of the stricture. It was not until this plan of treatment had failed, and I was satisfied that no good could result from continuing it that I recommended him to submit to the operation. We did so, and what the result has been, you can judge for yourselves. I will read you the notes of his case.

A French sailor, named Louis Eugene Aimé, aged 34 years, was admitted into my ward on the 3rd June 1863, with stricture of the urethra, from which he has been suffering for 8 years. It made its appearance as a sequel of gonorrhœa, and it has been aggravated by more than one attack of the same disease during the 8 years he has suffered from it. He has been in Hospital in Cherbourg, and also in Buenos Ayres. Many attempts have been made to pass catheters, but without success. Each operation was attended with great pain and hæmorrhage, and followed by fever. No instrument had ever yet been passed into the bladder. He was stout, and otherwise in tolerable health, but totally unfitted for his duty by the stricture. It was situated just in front of the triangular ligament—it was hard, painful and irritable, and bleeding profusely on the slightest touch with a bougie.

On the first day I passed No. 1, and subsequently up to No. 4, but there were much hæmorrhage and rigors followed by sharp fever, great muscular debility, and that peculiar broken down appearance, giving to a young man all the aspect of decrepitude and age. He became sallow and feeble, with a quickened pulse. I feared he was going to have pyæmia. After three or four attempts to dilate the stricture each resulting in the same way, I gave up the idea, and recommended operation, which he submitted to on the morning of the 13th June, three days after the last attack of fever. I performed the operation in the usual way as I have described, thoroughly dividing the stricture. There was considerable oozing of blood from the divided bulb, but it soon ceased with pressure and ice. I should remark that, before operation after each passage of a bougie, he had opiates and fomentations, and that the instruments were passed with the utmost delicacy and care.

14*th June.*—Has had no fever, pain or hæmorrhage; after the operation the urine flowed freely through the perineal tube.

15*th.*—Had sharp fever last night; yesterday found the tube had been clogged. Removed it.

16*th.*—Less fever; urine flowing freely through the wound; pulse under 100.

17*th.*—Much better; countenance placid, free from anxiety; pulse 84; skin cool and moist; wound clean; urine flowing freely through the wound.

20*th.*—He is doing well in all respects; wound granulating and beginning to contract. No. 9 has been passed into the bladder every morning since 15th.

21*st.*—Urine begins to flow partly by the urethra; all symptoms good; appetite good; sleeps well; bowels regular. No. 6 passed every morning.

22*nd June.*—Urine flowing by urethra.

14*th July.*—He is nearly well, wound all but closed.

NOTE.—This patient left the Hospital a few days after, perfectly well.

# ATRESIA ORIS.

I have frequently here met with cases of permanent injury to the mouth (the result of abuse of Mercury) of a most distressing character, which do not appear to have attracted so much attention as their very serious nature merits.* Profuse salivation causing ulceration of the gums, loss of the teeth, great constitutional debility, and even sloughing of the cheek, with destructive caries of the cranial and maxillary, palate or nasal bones, is rarely seen now in European Hospitals, where, whatever the views may be as to the use of Mercury in the treatment of syphilis, inflammation, or other disease, its most strenuous advocates employ it in much smaller doses, and are satisfied with a much more moderate manifestation of its physiological effects than used to be the case.

But unhappily, in this country, the uneducated native practitioners, and the people themselves, still adhere to the notion that profuse salivation is necessary, and the consequence is that we frequently are called in to remedy what indeed is but too irremediable, and where the most we can do is to afford only partial relief.

I have selected a case to bring before you this evening, in illustration of what I have just said. You will observe, that the destructive effects of the poison have been most severe, and that the result of the operation the patient has undergone has afforded partial relief.

This patient presented himself with his mouth firmly closed, the blade of a knife could barely be insinuated between the teeth. The lips and cheeks were closely adherent, and united to the gums, and the articulation of the jaw rigidly fixed.

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* Until lately, when described by Mr. Heath, in an interesting paper on the subject in the pages of the Dublin Quarterly Medical Journal. May 1863.

The man was discharged from Hospital on the 30th July, perfectly cured.

The patient, a Bengali, was introduced for the inspection of the Society.

He could speak as far a man may speak with his mouth firmly closed, and he was unable to take any food but such as was fluid. He was in a wretched state of emaciation in consequence. No discharge escaped from the mouth, cicatrization and hardening of the tissues were complete. I operated as follows. Dissected away the cheeks from the gums, and divided them (the cheeks) vertically at the angles of the mouth. Removed the alveolar processes which were necrosed and separated, although locked in by the contracted lips and gums. All the teeth, except two upper incisors, and one or two molars came away. The bleeding was sharp for a few minutes; but it was readily controlled by pressure.

Cicatrization has again partially united the cheeks with the jaws, and the buccal walls are almost as rigid as cartilage, but he has more motion of the jaw than he had, and he has been freed from the necrosed bones, as well as from the absolutely locked state of the jaws.

## FIBRO CYSTIC DISEASE.

The following two cases having recently occurred in the Hospital, both have been the subject of operation, and with the happiest results. For, from a condition of the most irritating and exhausting nature, they have been speedily restored to health.

The disease is by no means common, and it is rather remarkable that two cases so similar should have occurred so nearly at the same time.

The morbid growths are on the table before you, and you will observe, though much changed in appearance by immersion in spirit, that they are specimens of Cystic disease, and of that of the fibrous kind. The tumours were both of moderately rapid growth, and, until interfered with and opened, were not attended with much pain. But the suppuration and exposure of the cystic cavity appears to have been rapidly followed by the results usual after thus interfering with any morbid growth. The true gland structure in each case is much injured, if not entirely destroyed. The gland having disappeared under the pressure of the encroaching cysts.—From irritation, inflammation or exposure, the walls have become condensed and thickened, and what probably originally was a simple cyst has been converted in to a densely fibrous hollow growth, with various loculi, and in the present case, filled with products of inflammation. The constant irritation, fungoid growth attended by suppuration and frequent pain, combined with the depressing influence of the mental anxiety caused by the dread of malignant disease, had tended to lower the health, destroy sleep, appetite and spirits, and rendered the patients glad to submit to any operation that might afford prospect of relief.

The operations were performed in the usual way, and the result in each case has been satisfactory, in one especially, where the form of the breast is partially preserved.

I would remark that, although these cases are not either schirrous or medullary in their nature, yet I should be careful in giving any absolute prognosis as to the future, for it is not to be doubted, that fibrous growths do make their appearance in the mamma, as elsewhere, with that tendency to recur not only in the part whence they have been removed, but even in other organs, so as to have gained for them the designation of Malignant Fibrous tumours, or recurring fibrous tumours. It is certain that in the condition in which they came to the Hospital, it would have been in vain to hope that any other treatment than complete removal would avail, and it is satisfactory to think that the patients' present improved condition may be permanent, and not a mere temporary alleviation as in the case of schirrous growths.

The two female patients, who had been operated on and recovered, were brought before the Society. The tumours were placed on the table.

There is also an interesting case of Fibro Cystic tumour of the arm, the growth having been dissected from its connection with the brachial artery. The tumour is on the table, and the patient in the room for your inspection also.

# ABSCESS IN HEAD OF TIBIA.

It is, I believe, to the late Sir B. Brodie that we are indebted for the first account of this disease, its symptoms and mode of treatment. The formation of an abscess within the cancellated structure of a bone is attended with much pain and constitutional disturbance, and in cases such as the one I have the honor of placing before you to-day, it must of necessity be attended with rapid destruction, if at any time irritation, more than usual, should excite it into action. The caries already existing would, no doubt, rapidly extend, and so far involve the bone, including perhaps the joint, as to render repair improbable.

But it would appear that this form of the disease is not the only one; an encysted abscess may occur, one lined by the so called pyogenic membrane, and with no tendency to spread. The bone surrounding it being condensed and eburnated.

In this case, it was not so. Great part of the cancellated structure of the head of the bone was in a state of caries, combined with a large collection of pus. The pain and constitutional irritation had been very great, and when the patient presented himself at the Hospital he was suffering severely. The operation of trephining giving exit to the pus, and removal of the carious bone, gave him almost instant relief, and he has been steadily improving ever since. The wound has now nearly closed, and the motion of the knee is rapidly being regained. His constitutional health and strength have greatly improved, and he seems in a fair way for recovery.

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The patient, a Mahomedan, aged 25, was presented to the Society. The wound in the upper part of the leg nearly closed. He subsequently left the hospital perfectly recovered.

# ON PUNCTURE OF THE KNEE-JOINT IN THE TREATMENT OF SYNOVITIS.

By J. Fayrer, M.D., C.S.I.

Wounds communicating with the cavity of the knee-joint have always been regarded as extremely dangerous, as they are so frequently followed by destructive inflammatory changes which result in excision, amputation, or death.

The access of air to the opened synovial membrane is regarded as a great source of danger, as it is almost certain to set up irritation, followed by inflammation, which, passing into the suppurative stage, rapidly induces disorganization of the tissues that enter into the formation of the joint, and gives rise to constitutional disturbance, the precursor of surgical fever, which, if amputation be not performed, either wears out the patient by hectic and exhaustion, or destroys life more rapidly by the toxæmic changes due to osteomyelitis or other sources of pyæmia.

Notwithstanding the danger of opening the knee-joint, it has long been resorted to as a surgical operation for the removal of foreign bodies, such as loose cartilages from its cavity; but the opening has been made in a valvular form, and with every precaution to exclude the air. It has, moreover, been found necessary to prepare the patient for this operation by rest and confinement to the bed or couch, for it has been observed that, when the operations were performed without taking these precautions, dangerous and even fatal inflammation has followed. Some surgeons, to avoid actually exposing the cavity of the joint to the chance of the entrance of air, have effected the removal of the cartilage by a double operation. The first fixing it by a sub-cutaneous incision to the parietes of the joint, the second performed after the first wound had healed, removing it altogether. In the so-called hydrops articuli of the knee, a form of chronic synovitis, the joint has been tapped like a hydrocele, and a solution of one part of tincture of iodine and four parts of water injected, with similar results to those with which the same method of treatment has been practised in hydrocele, the excitement of a moderate and modified form of inflammation, and the consequent absorption of the fluid.

The chief source of danger, however, appears to be the access of air, or perhaps, according to more recent views, not so much the air itself as the organic germs that pervade the air, and that if this can be avoided, the risk of destructive inflammatory change is much diminished. If such be the case, the use of carbolic acid, on the antiseptic principle, seems likely to be of service, and may render a wound of the knee-joint a less formidable accident than it has hitherto been considered.

That the method of treating effusions into the joints by paracentesis and the injection of iodine is a good one we can understand from the analogy of hydrocele, and it is fortunate that this particular agent, iodine, seems to have comparatively little tendency, even when exciting severe inflammation, to cause suppuration. But still we cannot but feel that it is attended with great risk in the case of an important organ like the knee-joint, and as yet I have not ventured to test its merits. My experience, however, enables me to speak with confidence of simple paracentesis of the joint in the treatment of inflammation, and as I believe it is capable of affording great and rapid relief from pain, as well as of expediting recovery, I have no hesitation in recommending it: but it must be borne in mind that the operation is to be performed with the greatest care, and that every precaution be taken to exclude the air. I append notes of some cases in which I have found it to be of benefit, and in which I believe not only was relief conferred, but recovery expedited.

That the knee-joint may be opened and perfect recovery take place has been amply proved in many cases. Though such accidents, even when caused by sharp, cutting instruments, do in many cases give rise to flagrant inflammation, rapidly terminating in destruction of the joint and often of the patient. A wound of the cavity of the knee-joint must ever be regarded as an accident of the most serious character, and the prognosis of a doubtful character. It is satisfactory to know that, as in the cases here recorded, recovery may occur, and the joint retain its functions. Therefore, with whatever anxiety we regard a wound of the knee-joint, we know that it is our duty in the first instance to try, by careful management, rest, and the exclusion of air, to procure union of the wound, and obviate destructive inflammation of the articular cavity. It is not less important to keep a watchful eye on the patient's condition, that we may recognize and deal with the earliest symptoms of those inflammatory changes which, beginning insidiously, are apt to extend, and end in destruction of the joint.

### CASE I.

Shurno, a Hindoo female, aged 32 years, was admitted on the 24th May, 1868, with sub-acute idiopathic synovitis of the left knee, of one month's duration. Had had gonorrhœa about three years prior to admission. At the time of admission, there was general fulness and swelling of the joint, with a good deal of pain, most troublesome at night. Fluctuation at the upper and outer part of the joint distinct. Patella quite loose, motion of the joint impaired; it was in a semi-flexed position. The limb was put up in a *MacIntyre's* splint. Bowels opened by a dose of castor oil, quinine and iodide of potassium in five grain doses, administered thrice daily, and a blister applied above the upper and outer part of the joint. On the 28th May, the knee was tapped at its upper and outer side with a small trocar and canula, and three ounces of sweet oil-coloured fluid let out, puncture sealed by guttapercha. A day or two after, the knee began to inflame, attended by febrile disturbance. On the morning of the 31st May, the knee having been swollen and painful, the guttapercha was removed, and the joint was again tapped in the same place, and six ounces of thin puriform fluid drawn. The canula was kept in for a time, and the discharge allowed to drain away freely. Since this opening has been made, the joint has grdually improved, the discharge diminished, swelling subsided, and wound had healed by tho 22nd of January. In the course of the treatment, the patient had a large abscess at the upper and outer part of the left thigh, and a severe attack of diarrhœa; the former was opened, and the latter was checked by astringent mixture. From the day of tapping, that is, from the 28th May, up to 1st July, 1868, daily record of temperature and pulse were kept, the range of the former varying from 99 to 100° in the morning, to 102° in the evening, and that of the latter from 84 to 116°. Internally quinine and iodide of potassium were given; subsequently astringents when she had diarrhœa, lastly ferruginous tonics. As regards external applications cold lotions were applied during the existence of inflammatory symptoms after tapping, and subsequently when matter formed in the thigh, carbolic acid injection and dressing. The patient was discharged on the 15th October, 1868, much improved in health, but with the knee partially anchylosed, and some thickening about the joint; embrocations were ordered to be used freely.

### CASE II.

Tajmahal Hossein, aged 28 years, policeman, admitted on the 24th July, 1868, for scrotal elephantiasis and double hydrocele, of five years' duration. This was removed by surgical operation on the 29th of July, and he did well after the operation; the wound cicatrizing healthily, until the 16th September, when he began to complain of pain in the left knee. On the following day, both knee-joints were affected, and on the 18th, a collection of fluid had formed in the knee-joints. Purgatives were given and tincture of iodine applied to the joint; iodide of potassium was administered, and under this treatment, the left knee recovered. The right, however, remained distended with fluid, and was painful. The tincture of iodine was again applied, and iodide of potas. administered. On the 30th September, the swelling still remaining, and there being no fever, the right knee-joint was tapped with a small trocar and canula, and nearly four ounces of yellowish and somewhat viscid fluid drawn off. The puncture was made valvular, and the opening having been carefully protected against the ingress of air, was closed by lint soaked in a solution of guttapercha in chloroform. The removal of this fluid gave great relief, and no unpleasant consequences followed.

On the 4th October, it is reported that "both knees are nearly well," neither fever nor inflammatory mischief followed. There was no re-secretions of the fluid, and the swelling did not recur. He continued to take the iodide of potas., and for some days the knee was kept at rest. Some stiffness and weakness of the joint that remained were gradually removed by friction with camphor liniment. He was discharged cured on the 5th January, 1869. The knee had perfectly recovered in November, but he was detained until the complete cicatrization of the operation wound, which was not complete until January, 1869.

### CASE III.

Kally Doss Sircar, a Bengalee, aged 32 years, was admitted on the 31st January, 1868, for pain, swelling, and impaired power of motion in the right knee, of four months' duration. For the last four years he had been subject to similar attacks, for which he had undergone a variety of treatment. There was no history of syphilis.

The joint was found to be distended with fluid, and was contracted. The limb was extended under chloroform, and placed on a splint, and the extension gradually maintained. Iodide of potassium was given, and blisters applied in the vicinity of the joints. Strapping of the knee was subsequently tried. He made slight improvement under this method of treatment, but soon fell back again. On the 2nd May, no real improvement having taken place, I tapped the knee-joint, and withdrew ℥viii of fluid of a thin sanguinolent appearance with flakes of lymph floating in it. The opening as in the first case was made valvular, and immediately closed against the access of air by lint soaked in guttapercha and chloroform. The knee was then placed at rest on a splint, and the iodide of potas. continued. The swelling and pain were much relieved by the operation, and on the 14th he could bear his weight on the limb, which had so long been completely crippled and contracted.

Some swelling still remaining, either from re-accumulation of more fluid, or some of the old not having been removed, I again, on the 26th, drew off about ℥viii more fluid just like the first. The wound was closed, and the same precautions observed as before. He was again relieved; neither pain nor inflammation followed. The knee was subsequently strapped. On the 7th June, he was able to walk, and bend the knee in doing so. On the 27th June the strapping was removed, and camphorated oil rubbed in. On the 15th July, he was discharged; able to walk and much improved in all respects. The joint is still stiff, with some thickening of the surrounding tissues.

### CASE IV.

K. C. Mookerjee, aged 30 years, was admitted on the 9th April, 1869, an opium eater, with chronic synovitis of the right

# CASE OF SLIGHT INJURY OF THE HEAD FOLLOWED BY BLOOD-POISONING, AND DEATH FROM CARDIAC APNŒA, IN AN ENGLISH CHILD AGED 4½ YEARS.

By Dr. Fayrer, C.S.I.

It appears that on the 15th July he fell and cut the back of his head slightly; it bled rather freely, but his mother applied a piece of sticking plaister, and the bleeding ceased. The wound was small, to the left of the mesial line, and just below the upper curved line of the occipital bone. He cried at the time, but soon got over the pain, and was well and cheerful afterwards.

The accident was so trivial that I was not asked to see it, and nothing suggestive of any unfavorable consequence rendered it necessary that I should do so.

Throughout the week following the accident he was considered to be in his usual good health and spirits, but the native nurse says that for the last two days he had sometimes said he was not quite well; but he said nothing to his mother, except on the 21st, that the back of his head "itched". He ate well, slept as usual, but he was naturally a restless child at night.

He went with other children to spend the day next door. Mrs.—— says that she noticed, when playing with the children, that he squinted occasionally, and did not, on one or two occasions, reply to questions; she thought it odd, and mentioned it to her husband. He was quite well in the evening, and went to bed in good spirits. At 3 a.m., his aunt was called to see him and found him restless and feverish; she gave him some fever mixture, and sat by his side till he went to sleep. After this he became more feverish and was sick. When she saw him again in the morning he was very feverish, restless, and light-headed, and there was a peculiar twitching of the muscles generally. He was then taken into his mother's room. He had a calomel powder and an enema given, which acted freely. I did not see him till about eleven A.M. He was then delirious; the muscles were constantly twitching; his skin was hot; his pulse was quick and rather weak; the pupils were dilated; and he had a peculiarly unconscious stare. I immediately examined the head, and found the occipital region boggy and œdematous. It was then that I heard for the first time of the accident. My thoughts were immediately diverted from malaria, tubercular meningitis, &c., to the wound.

I shaved the head and examined it very carefully. A piece of black court plaister was removed from the wound, and a drop or two of healthy pus made its exit. The wound itself was about the size of a split pea, and looked quite healthy, it was deep, the probe passed down nearly, but not quite, to the pericranium; the bone could not be felt.

The scalp all round the wound from the upper occipital curved line to the neck was swollen and œdematous; it was boggy, but *not red*; no erysipelas had as yet supervened. I examined carefully for suppuration in, or under, the scalp; it was thickened and infiltrated, but no positive evidence of the presence of pus existed. I observed that the respiration was much hurried.

The symptoms rapidly became worse; the delirium increased, and he soon began to be violently convulsed. He rejected all that was given him, and passed from a state of incoherent delirium into silence. The respiration became excessively hurried, 80 in a minute; pulse very feeble and irregular; head rather hot.

Air entered the lungs freely, but apparently the pulmonary circulation was greatly embarrassed; it was evident that fibrinous coagula were rapidly forming in the right cavities of the heart. He was quite unconscious; eyes staring; pupils widely dilated; lips at times became quite livid, again, for a moment, becoming red.

I had applied a poultice over the wound and swollen parts, and ordered cold wet cloths to the head; chicken broth to be given frequently, and the enema to be repeated. Stimulants were now freely given by mouth and rectum, with quinine. Quinine had also been given at the first. Not the slightest benefit resulted beyond the occasional slight raising of the pulse. The child rapidly grew worse, and the embarrassed heart ceased to beat at 4 p.m.

The cause of death here was evidently cardiac apnœa, due to the formation of coagula in the right cavities of the heart. The origin of the septic condition that induced this can only be attributed to the mischief which had insidiously supervened in the occipital region. It is very remarkable that it should have manifested itself so long after the accident, and that it should have proved so rapidly fatal. The swelling of the scalp was not noticed until I accidently put my finger on it in examining his head, and there is every reason to believe that it was quite of recent occurrence.

For a moment the question of the trephine was suggested, on the supposition that pus might have formed between the bone and dura mater. But the evidences of constitutional mischief were so marked, and the chance of relief so very faint, that it was at once abandoned.

The body was examined on the 23rd July, about 14 hours after death. The back and other parts of the body were already much discolored by suggillation.

*Head.*—The scalp was reflected; all round the wound it was thickened and infiltrated with a dark red serous and probably partially purulent fluid. This occupied an area of an inch in each direction; beyond this and down to the neck it was infiltrated with yellow turbid serum. All this part of the scalp was œdematous. The wound itself was healthy, and reached nearly, not quite, to the pericranium, which was unwounded.

The pericranium was detached from the bone for about a square inch, corresponding to the site of the superjacent wound. The bone was bare, but did not appear dead. The bones of the cranium were healthy; the section revealed no suppuration in the cancellated texture.

The longitudinal and other sinuses were distended with blood and contained coagula.

The brain was much congested on the surface; the vessels between the convolutions were engorged; the surface of the base, especially over the wound, was slightly ecchymosed under the arachnoid. There was no indication of arachnitis; nothing suggestive of tuberculosis. The brain substance, when cut, was not congested; the ventricles were normal; the membranes were also healthy.

*Thorax.*—The lungs were pallid, almost blanched, except just at the back. They contained little or no blood, but some air.

*Heart.*—Pericardium natural; heart firmly contracted; the right auricle and ventricle contained a peculiarly tough decolorized fibrinous clot, which was firmly wedged in the auriculo-ventricular opening. It did not extend into the pulmonary vessels, but it did worse, by obstructing the pulmonary circulation at the very outset. There was also a small quantity of *post-mortem* clot in the right ventricle, and in the left cavities of the heart. The pleuræ were natural.

*Abdomen.*—Viscera healthy.

# EXCISION OF THE SUPERIOR MAXILLARY BONE.

By J. Fayrer, M.D., C.S.I.

Okhoy Churn Biswas, a Bengalee ryot, aged 25 years, was admitted on the 1st November, 1869, with a tumour of the right superior maxilla, which he stated to be of about a year's duration.

He was a slight, rather delicate, but not unhealthy-looking person, and apparently free from malarious poisoning.

The disease commenced in the gum, and growing rapidly, two molar teeth were removed. Inflammation, suppuration, and an abscess in the antrum followed, and a sinus formed in the cheek, which still discharges pus. The tumour seems to have grown rapidly, involving the entire maxilla and part of the malar bone. On examination it presented the appearance of a firm fibrous growth encroaching on the palate of that side, and distending the cheek; the eye was also somewhat pushed upwards, and the nose pressed to the opposite side. The alveolus presented the appearance of a dense fungoid fibrous-looking growth, depression marked where the teeth had formerly been. He could not breathe through the right nostril, and deglutition had become painful and difficult.

I removed the tumour under chloroform on the 3rd November, in the following manner: an incision was made from the commissure of the lips to the zygoma on the affected side, and the cheek was turned back. The hæmorrhage from the facial artery was profuse, but, with that from other smaller branches, was immediately arrested by ligatures. I made no other incision in the face, but having detached the cartilages of that side of the nose, and drawn the flap to one side, I divided the palate and alveolar process with the mouth, having first removed an incisor tooth, with a long narrow saw.

The eyeball being kept out of the way, the orbital process and the malar bone were cut through into the orbit with the bone forceps, and the entire bone, with half of the malar, was removed with the lion forceps. I had previously divided the soft parts of the palate with a scalpel. The hæmorrhage was rather profuse, but pressure and ice soon arrested it; one branch at the posterior part of the palate continued to give trouble, and bled again during the day, but was controlled by Mr. Saunders, the Resident Surgeon, by tannin and pressure. The wound in the cheek was closed with horse hair sutures, and carbolic acid dressing applied. The cavity was stuffed with lint soaked in the carbolic oil dressing. He had no subsequent hæmorrhage; the wound united rapidly, the greater part by immediate union. The sutures were removed on the fourth day; the ligature in the cheek on the fourth day; and the stuffing on the third day. There was slight febrile disturbance for a day or two, and a good deal of pain, but it soon passed away, and he made rapid progress towards recovery. On the 10th he was nearly well, the wound perfectly healed. The cavity granulating healthily, with very little discharge, and he was able to take his food freely.

On the 13th he is well, though perhaps rather weak; the mouth is washed out with the ordinary carbolic acid lotion twice daily.

There is almost no deformity, the cheek has fallen in so little, and it is difficult to conceive that the orbital plate is gone, for the eye, except for slight ecchymosis, looks quite natural. He has recovered in ten days. The tumour was found to be of the fibro-plastic variety; it involved the entire bone; it had commenced in the alveolar process, gradually invaded the antrum, filled it, and was covered by a thin scale of bone, part of which had to be dissected off the flap of the cheek after the tumour was removed. The weight of the part removed was five and half ounces; under the microscope it was found to consist of fibro-cells, fibres, free nuclei, and a few cells; it was of firm consistence, but could be readily cut with a knife; and on the surface the remains of that bone were found in the form of osseous scales.

# STRICTURE OF THE URETHRA; DEATH FROM URETHRAL FEVER AND URÆMIA.

### By Dr. Fayrer, C.S.I.

Some months ago I was requested by his medical adviser, to see a gentleman who was suffering severely from urethral stricture of several years' duration. The patient was about 35 years of age; a stout, flabby, pallid and unhealthy looking person.

Several years previously I had seen him, and had then passed instruments up to No. 10. He was suffering from an irritable stricture, partly organic, but greatly aggravated by muscular spasm. Again, during the rainy season of 1868, I had seen him when in similar trouble, and was unable to introduce any instrument owing to the extremely irritable state of the stricture. He was exceedingly anxious to be operated on. I advised him to wait until the cold season, unless some urgent symptom should render immediate interference necessary.

I saw him again at 2 p.m. on the 10th day of the month, on the occasion I am about to describe, and found him looking in his usual state of health, but he was very nervous, restless and irritable; the bladder constantly attempting to empty itself, and the stricture consequently causing him extreme distress.

His bowels had responded to an aperient that day.

I immediately, and without any difficulty, passed instrument No. 10 into the bladder; being conscious both of the structural as well as the spasmodic nature of the stricture, which offered some resistance. The operation caused him comparatively little pain. Directly after it, he went into the bathroom, and voided some urine, which, I believe, was not even tinged with blood; whilst passing the urine he had a rigor, and I heard that he had fever during the evening. I did not see him again until the 14th, five days later, when I was requested by his medical adviser to do so, at about 8 p.m. I found him very ill; he was partially unconscious, tossing about in bed in an extreme state of restlessness and jactitation, picking and snatching at the bed clothes; his face was convulsed and distorted; the pupils partially dilated with converging strabismus occurring at intervals; he was continually muttering, or rather moaning, and seemed to be in great suffering; the entire muscular system was in a state of irregular spasm; his pulse was quick, feeble, and intermittent; he had been very sick during the day, and, had had fever at intervals; but it was only since about 7 p.m., that he had passed into the condition in which I found him, and which was gradually becoming worse; his body was then cool, and his skin moist; and there was a peculiarly offensive ammoniacal odour in his breath and from his person; the abdomen was not distended, and the bladder was apparently empty. The bed and his lower extremities were moistened by a urinous smelling fluid; the bowels were reported to have acted during the day; there was no tenderness on pressure over the pubes, nor was there any swelling or pain in the perineum, nor had he complained of any during the day or previously. I could get no satisfactory evidence as to the quantity of urine that had been voided during the day, nor indeed as to the exact quantity passed during the four days that had elapsed since I passed the instrument. The attendants said that if he had passed it at all, it must have been where he lay, or when the bowels acted; there was very little apparent evidence of any in the clothes. He appeared to be partially conscious, though unable to speak; he attempted to put out his tongue when told to do so, it was dry and red at the edges, but brown in the centre.

It appeared to me that this was a case of uræmic poisoning supervening on urethral fever; the kidneys, probably, originally defective, had succumbed, and rapid blood poisoning supervened in consequence.

His hair had already been cut short, and ice applied to the head; it was now shaved and covered with ice. Hot fomentations were applied, also leeches and dry cupping to the loins; an enema of sulphuric ether with assafœtida, soap and water, also a powder of jalap and colomel was administered. He, however, got rapidly worse; the convulsions became more marked with intervals of comparative quiet, and finally, after a convulsion, he died at 10 p.m.

Until the 14th, when I was asked to see him again, there had been nothing in his condition to cause anxiety. He had feverish attacks occasionally with restlessness, and his urine had been passed until that morning. The treatment, I believe, had been chiefly sedative, with a simple and unstimulating diet. The bowels had been kept open by aperients when necessary.

On the morning of the 14th he was peculiarly restless, and appeared to be dull intellectually. The urine, as far as I can gather from those about him, had been less in quantity; and there had been unusual nausea and vomiting of bilious matter. In the evening he passed rapidly into the state of uræmic convulsions, in which I found him, and after this he rapidly sank. I do not know much of his previous history, but I have reason to believe, that his life had been somewhat irregular; and he had the puffy bloated aspect of a man, whose habits are irregular and whose general health is not good. I regard this as a case of typhoid uræmia—supervening on urethral fever developed by the passage of a bougie through the strictured urethra of a person of extremely irritable constitution with defective kidneys. The state of the stricture, which was constantly threatening him, and had more than once caused complete retention and endangered his life, rendered interference necessary; and, accordingly, selecting the best season of the year, the winter, the treatment was commenced by the passage of a bougie, which, I was astonished to find, was accomplished so easily. It can only be said in this case, that the faulty state of the general health was the cause of the evil consequences that followed. It indeed shows the danger that impends over any one so affected, and proves that such cases are not only the subject of great anxiety, but that they render the greatest care necessary, not only in the treatment, but in the mode of the patient's life. It was supposed, I believe, that the patient had undergone a formidable cutting operation. The only surgical proceeding was, as I have stated, the passage of a bougie, and this was accomplished with the greatest ease.

The subject of urethral fever in persons of irritable constitution, with imperfect blood making power and defective eliminating organs in the malarious climate of Lower Bengal, is one of considerable interest, and I regard this case as illustrative of it, from its most interesting point of view.

I regret that I never had an opportunity of examining the urine, and that a *post mortem* was not obtained.

# POST PARTUM HÆMORRHAGE; DEATH FROM SHOCK.

By J. Fayrer, M.D., C.S.I.

On Sunday morning, 23rd May, 1869, I was sent for to see Mrs ——— whose expected labour (primipara) had commenced. I found that she had been suffering more or less since the previous evening; the pains were irritating and fatiguing, and had disturbed her rest throughout the night. I made an examination during one of the pains, and found the os uteri high up and pointing towards the sacrum; it was not dilated sufficiently to admit the point of the finger. The bowels were confined, so I ordered a dose of castor oil, and an enema if necessary. I saw her again later and made another examination; the pains were continuing as before, there was no change. The oil had caused sickness; the enema had proved effective; the bladder had also been emptied. Her pulse was natural, her skin cool and moist. The tongue was moist but slightly coated in the centre. I saw her again during the day, little or no progress had been made, by evening, in the dilatation of the os which was rigid, with its margin thin and tense. There was no change in the position of the head which presented, and was as high as ever. She complained much of the fatigue and worry of the incessantly recurring pains, but constitutionally she was unaffected. Her pulse, tongue, and skin were all as they were in the morning. The passages were moist and cool. The fœtal heart was distinctly audible and there was no indication of constitutional disturbance of any kind. During the day she had been sick after the oil, and had vomited some bilious matter. She had taken a sufficient supply of fluid nourishment, and a little wine and water occasionally. To give rest, I ordered, after the bowels had acted, liq. opii, min. xxv. It was repeated at bed time, but she had, on the whole, a restless and disturbed night. I found her on the morning of the 24th looking tired and anxious, but all her symptoms were good, pulse about 86; tongue moist and clean; skin cool and moist. The os uteri was now found to have dilated to about the size of a shilling, and was rigid. I prescribed small doses of antimony, $\frac{1}{4}$ grain to be given every hour with the view of causing relaxation. After taking three or four doses, she was sick, and it was discontinued; I also put her under the influence of chloroform for a few minutes, on two or three occasions. During the day she took an ample quantity of nourishment; the bowels were relieved, and constitutionally she was as well as ever. Towards evening I became rather uneasy about the non-dilatation of the os uteri, and I expressed my intention to her husband, if, by 9 P. M. more satisfactory progress was not made, to have a consultation. At 9-30, I made another examination, and ascertained that some progress had been made. The os was now about the size of a rupee. She had slept at intervals, and her pulse kept steady; the tongue clean, and the skin was cool and moist. I saw her frequently during the night, as I remained in the house, and was satisfied that progress, though slow, was being made. At 10 A. M. of Tuesday, the 25th, the os had dilated to the size of the rim of a wine glass. As all her symptoms, beyond the delay, were favourable; the pulse under 100, tongue clean and moist, skin and passages moist and cool, fœtal heart vigorous; interference was uncalled for. The pains continued, but, perhaps, with more rapid succession, and by 12-30 the second stage of labour had commenced. The head was now well down, and the character of the pains changed. The expulsive efforts continued at regular intervals, and at 5-40 P. M. when partially under the influence of chloroform, she gave birth, with little difficulty, and without the least laceration of the perineum, to a large male child.

The infant was partially asphyxiated, having the cord twice round its neck; but on releasing the cord, using artificial respiration, and dashing cold water on the face and chest, it soon breathed and cried vigorously. The cord was then tied and divided. The uterus meanwhile had contracted firmly, and in from fifteen to twenty minutes the placenta was spontaneously expelled; up to this time she had not lost an ounce of blood. I should have noted, that the membranes ruptured at about 10 A. M., and that the liquor amnii trickled away with each pain, but there never was any protrusion of a bag of membranes to aid in dilatation. Soon after the placenta had come away, the uterus being firmly contracted, the pad and binder were applied. She was feeling and looking well, and was much delighted at the birth of her child. Her pulse was peculiarly good, under 90, and firm. Indeed, it was remarkable how well she bore the second stage of labour; her strength which had failed slightly towards the close of the first stage, returned; the restlessness passed away, and her pulse which had quickened, though never over 112, sank to almost the normal standard. I then left the room at about 6·5 P. M., whilst the nurse arranged her bed and dress. In a few minutes I went into the room again to see that all was right before leaving. Whilst I was speaking to her, she said she felt uneasy, and had a violent pain in her back. This was about thirty-five to forty minutes after the birth of the child. I put my finger on her radial artery, and found the pulse had suddenly quickened. I immediately had the binder removed, and found that hæmorrhage had begun. The uterus had relaxed, and was distended with blood. I immediately removed the clots with the right hand, grasping the womb with the left; applied ice, and *douches* of iced water externally, and injected iced water into the uterus. I gave liquor ergot, ʒss, and powdered ergot shortly after, and applied the Magneto electric current, the instrument being brought immediately. The child was also put to the breast. With these measures the uterus contracted firmly, and remained so to the last. The quantity of blood lost could not have exceeded two pounds. She was considerably depressed, but did not at this time lose the red colour of the lips and eyelids; the pulse was rapid and irregular, but her voice was good, and she seemed free from alarm, when in reply to her query she was told that the bleeding had been controlled. She did not faint, neither did she manifest, at this time, the usual symptoms of dangerous hæmorrhage. She was quiet, and spoke calmly and cheerfully about herself. I gave her brandy and water freely, beef-tea, and brandy; mustard poultices over the heart, solar plexus, and on the back. Brandy was also given in the form of enema, and hot bottles were applied to the extremities; but her condition did not improve. The pulse became weaker, and more rapid and irregular; she was restless, and the surface of the body bedewed with a cold sweat. The countenance began to change, and signs of collapse rapidly set in. These symptoms did not make their appearance for fully half an hour after the hæmorrhage had ceased. I had, meanwhile, sent my carriage for assistance, and Dr. Chevers, who was the nearest, came at once. There was no return of hæmorrhage, the womb remaining firmly contracted, and not parting with the smallest quantity of blood. During the application of the magnetic battery, and whilst other measures were being taken to ensure uterine contraction, she was in good spirits, held the wire with her own hand, and laughed at the nurse who held the other wire. Reaction never properly set in, she seemed to have no power of rallying, and notwithstanding every effort, she gradually sank. The pulse occasionally rose slightly, giving a delusive hope of reaction, and for a few moments she slept; but at last the breathing became hurried, as though pulmonary obstruction was taking place from coagula forming in the right side of the heart. She had become intensely restless; talked for a short time incoherently; and then sank and died, quietly, at about 9-30 P. M., three hours and fifty minutes after the birth of the child, and about three hours and a quarter after the occurrence of hæmorrhage.

There are some points of interest to be considered in a review of this sad and interesting case. The patient was a young English lady, age 23, who had been married about ten months, and been in India four months. She was of a tall and sufficiently vigorous, though rather slight frame; her general health good, nor was there anything, in her appearance suggestive of deficiency in vital force. She was said to have suffered severely from measles shortly before her marriage, and was considered to have been somewhat constitutionally weakened thereby. She had passed through the period of her pregnancy without much inconvenience, and had completed the full time when labour commenced.

The progress of the first stage of labour was unusually slow, for commencing on Saturday evening, it was not until Tuesday at noon, that the fœtal head passed through the cervix, and entered on the second stage of labour.

But as her constitutional powers were not depressed, no interference, beyond small doses of antimony to facilitate dilatation, opiates to give rest, and chloroform occasionally was considered necessary, and the result proved that such was the case, for the second stage of labour was completed within six hours, and she gave birth to a vigorous and healthy child without much difficulty, and with little suffering, as she took chloroform. After the expulsion of the placenta, the womb contracted firmly, and up to this period there had been no loss of blood. The relaxation of the womb that caused the loss of blood was sudden, but it was rapidly arrested; and though, in the first gush of hæmorrhage, a considerable amount, about 2lbs, of blood was lost there was no repetition of it: the uterus, after being relieved of the clots, contracted firmly, and there was no recurrence of hæmorrhage.

The amount of blood lost was not so great as to give rise to dread of impending death. Much more has been lost in other cases, and yet perfect reaction and recovery have followed. But there are certain constitutions that seem to be endowed with but little power of rallying from a shock, even though slight, and in whom the vital energy, though equal to all the ordinary emergencies of life, is inadequate to the task of recovery, when any serious cause of depression has affected the nerve centres.

In such, no doubt, the great heat of a Calcutta May, and its terribly depressing influence must be an additional source of weakness, and a most important obstacle to recovery, when any such shock to the nervous system has taken place.

That death should occur from syncope, or from great exhaustion in profuse hæmorrage, either when the blood is flowing, or immediately after it has ceased to flow, is, though fortunately uncommon, yet sufficiently intelligible, and needs no explantation in any real or fancied constitutional defect in the sufferer; but that death should follow a comparatively moderate loss of blood, and when all else was apparently free from defect or disease, is more remarkable, and forces one to the conclusion that, in a constitution naturally inert as to vital power, the influence of climate, such as that of Calcutta in the hottest season of the year, must have had a prejudicial effect in preventing the reaction which, in other cases, under ordinary circumstances, might have been hopefully anticipated.

I am satisfied that the labour itself had nothing to say to the unfortunate result. The first stage was certainly very tedious, but it was neither attended with, nor followed by, any failure of constitutional strength. The second stage was accomplished with vigor, and after the birth of the child, the patient was in all respects as well as one could have desired to see her. I have frequently noticed that loss of blood in a surgical operation that would hardly affect one person, proves almost, if not quite, fatal, to another, each being to all appearance equally strong—the difference is due, no doubt, to different degrees of vital energy in the individuals. so, in the case I have described, I can only ascribe death to a similar cause.

# FATAL CASE OF IDIOPATHIC TETANUS IN A EUROPEAN.

By J. Fayrer, M.D., C.S.I.

On the 27th of March, 1870, I was requested to see Mr. D—— S——, a Greek gentleman, aged 36 years, of stout frame, lymphatic temperament, though with dark hair and anæmic complexion. He had returned to India about fifteen months ago, after a visit of three years to Europe, having previously resided for six years in Calcutta, during which time his health had been moderately good. During his last visit to Europe he suffered from some severe abdominal disorder, probably enteritis, but he had regained his health when he returned to Calcutta. I found him suffering from a slight feverish attack, for which I ordered a simple diaphoretic, and enjoined quiet and rest at home for the day. He complained also of a pain in the right pectoral region, which was apparently muscular, as the stethoscope did not indicate any thoracic mischief. For this I recommended a sinapism and some simple embrocation.

The weather had during the previous day or two become very hot, and a dry south-westerly wind was blowing.

On the 28th, he was better, but not well enough to go to his office; he was advised to remain at home. I observed that his room was very close and warm, as the windows had all been kept carefully closed; and recommended more ventilation. He said that the pain in the chest was almost gone. I again made a most careful examination, and could detect no sign of either hepatic or pulmonic disorder. I recommended a better diet and some wine.

On the 29th, when I went to see him, his servants said he was better, and had gone to his office.

On the 30th, he called on me at about 11 a.m., and said he was not feeling well; he had a sensation of stiffness in his neck, which he attributed to a chill, the result of going out into the open air from his warm room, when he was perspiring freely; otherwise he was better, had no fever, and his bowels were open, but he had had a restless night, and he looked anxious and uneasy. I ordered an anodyne liniment, and recommended him to avoid exposure to currents of air.

In the evening I received a note saying that he was not better, and requesting me to go and see him. I did so, and found him alarmed and anxious about his condition. He was restless and uneasy, complaining of stiffness in the neck and jaws, and difficulty of swallowing, but, withal, no pain. He looked dark under the eyes; his skin was moist, with cold sweat;

and his pulse about 90°. He could open his mouth, but imperfectly, and there seemed to be general rigidity of all the muscles of mastication and deglutition. I ordered hot fomentations, an anodyne embrocation, and sedatives. I saw him again at 7-30 p.m. and remained some time watching him anxiously. I prescribed Cannabis indica and chloroform internally, with hot stupes to the neck and jaws, which gave some relief. He was thirsty, and drank iced-water pretty freely, but with some spasm; he tried to take soup but very little was swallowed. The rigidity of the neck and occasional spasms of the masseters was increasing; the head was drawn backwards and carried in a peculiarly stiff and erect position. My suspicions were now confirmed, and as I could find no history of any traumatic origin, it was evident that idiopathic tetanus was rapidly setting in. I expressed my fears for the result to his friend, and suggested further advice. Meanwhile, the fomentations and medicines were continued, and beef-tea administered frequently. The attempt to swallow it was always attended by spasm. The effort to expectorate viscid mucus had the same effect.

Drs. C. Palmer and Partridge saw him, and it was decided that the medicines should be continued. Belladonna liniment applied to the neck, and nourishment given frequently. The bowels to be again acted on by enemata, and if the difficulty of swallowing became greater, the medicines to be given by enema.

Nutrient enemata were also ordered, and the administration of chloroform at intervals prescribed. Notwithstanding treatment, the tetanic spasms rapidly increased with renewed intensity. He was much exhausted after each, and his body bathed with cold sweat. The countenance became livid and distorted, as the respiratory and laryngeal muscles were involved, and during the paroxysms opisthotonos was severe. The pulse became rapid and feeble, at times very irregular and intermittent, pausing for a time, as though the heart itself shared in the general muscular spasm. His consciousness remained, he occasionally tried to speak, and asked the nurse to open a window. The least touch brought on the spasm, which rapidly involved the abdominal and thoracic muscles, and left him quite exhausted. The last and fatal paroxysm occurred at about 11-30, and at $\frac{1}{4}$ to 12 he died, completely exhausted by its violence. The pulse had ceased, it returned again for a moment, and then ceased altogether.

Idiopathic tetanus in the adult European is a rare form of the disease, and comparatively seldom witnessed. This was one of the most severe and rapid cases I have seen. The only cause that could be assigned was the sudden exposure to a relatively cold atmosphere, when the body was relaxed by the heat of a warm room, and when the constitution was somewhat depressed after a slight febrile attack. The atmospheric influence at the time was no doubt evil, and favorable to the development and rapid course of acute disease. The setting in of the extreme heat is always most trying to the European constitution, and at such times disease has a tendency to be rapid as well as acute. Idiopathic tetanus is not uncommon among the natives of India. I have observed that it has a greater tendency to occur at the changes of the seasons, when there are great and sudden alternations in temperature. It is not, as a general rule, so fatal as the traumatic form of the disease, and recoveries are not uncommon; although, as in the present case, it is frequently very severe and rapidly fatal.

# GANGRENE OF THE INTEGUMENT OF THE LEG FROM A CONTUSION; FATAL TERMINATION DUE TO SPLENIC CACHEXIA AND THE FORMATION OF FIBRINOUS COAGULA IN THE RIGHT SIDE OF THE HEART.

By J. Fayrer, M.D., C.S.I.

A Bengalli student named P. D., aged about 20, was admitted into the Medical College Hospital on the 15th of April, 1870, suffering from the results of a contusion on the right leg. He says that he tripped and fell, eight days before admission, over some bricks, and thus bruised himself, but was not seriously hurt. The part became painful, the leg swelled, and being unable to walk, he came to the hospital. He had been suffering from frequent attacks of malarious fever, and enlargement of the spleen, for the last five months; his appearance confirmed this statement.

The surface of the contused and abraded integument had been weeping a bloody sanies for three days, and for four days he had been unable to rise from his bed. The leg and knee were œdematous. The bruised portion, which was just below the knee-joint, looked as though it were becoming gangrenous; the temperature was low, and sensation diminished, the limb generally painful. He was depressed; pulse small and feeble. No diarrhœa. He was ordered stimulants and quinine. Carbolic oil dressing was applied to the injury.

He remained in this state for two days, during which time the injured part became gangrenous to the extent of about two inches. The respiration began to be hurried on the 18th; slight return of fever in the evening, but temperature in axilla not above 99°·4, generally much lower. Ammoniacal stimulants were given both by enema and in the usual way, but there was no improvment: the respiration became more gasping and hurried, no murmurs were heard over the pulmonary artery; the heart's sounds became more feeble, the respiratory sounds gradually diminished, and in a state of extreme cardiac apnœa, he died at midnight of the 20th.

The post-mortem examination was made on the 21st. The liver was of normal size, but discolored from commencing decomposition. The spleen was much enlarged. The kidneys healthy. The lungs were somewhat congested hypostatically; a portion of the lower lobe of the right lung was consolidated.

On opening the heart a firm fibrinous coagulum was found extending from the right auricle, where it was reddish, into the ventricle, where it was straw-colored; thence, firm and fibrinous into the pulmonary artery and its minute sub-divisions; a similar one was found in the left cavities, extending into the aorta.

The integument was gangrenous for several inches down the leg. The knee-joint was not compromised, and on being laid open its structures were normal.

There was certainly not sufficient in this case, in the mere gangrene of the integument of the leg to account for death in an ordinary individual; but in a person suffering from malarious blood poisoning and enlargement of the spleen, it was more than sufficient. Probably in no condition of disease is the formation of fibrinous coagula more likely to occur, on the least disturbance, than in splenic or malarious cachexia. In a marked case, such as this, where the spleen was four or five times its natural size, it may be said that there is nothing remarkable in the termination of the case, for do we not see it almost daily in the cases of cancrum-oris, sloughing ulceration and necrosis that are unhappily so common in Bengal, and probably in other localities wherever that condition called "Malaria" is rife? The imperfect condition of the blood making organs, and the improverished blood they elaborate, are amply proved and demonstrated in the anæmia, and in the great tendency to disintegration and death of the soft tissues and bones. Whilst the evil results of hypcrinosis are seen in the limbs or other parts of the body, gangrenous from embolism when it occurs in the systemic or arterial circulation, and in the œdematous or gangrenous limbs also, when it occurs in the venous system; or still worse, in the multiple deaths of portions of the viscera which are so frequently seen in the so-called pyæmic conditions generally met with after wounds and injuries, though by no means unfrequently, idiopathically.

But it is the formation of the fibrinous coagula at the very fountain head, in the cardiac cavities themselves, that I would especially notice, and particularly that very fatal form of it, which occurring in the pulmonary side of the circulation, is so frequently fatal to life. I have frequently called attention to the subject, as one of great importance in a surgical point of view, for it is not only in cases where an enlarged spleen renders almost any operation impossible, and causes almost any wound to be fatal, but in many others whether of wound or injury, where there is no obvious disease of the spleen, and where all seems to be, and to promise well, that it may and often does supervene and rapidly carry off the sufferer. The condition is one most common in exhaustive diseases, and it is, no doubt, often one of the latest pathological phenomena manifested by the moribund; but it is more than this, for as I have frequently said it may set in where there is no appearance of exhaustion, when repair and nutrition are going on satisfactorily; and within 24 or 48 hours carry off the patient, whose body after death presents no solution of the cause of death beyond a firm, white adherent clot in the right auricle, or ventricle, or it may be just at the ostium of the pulmonary artery which is indeed the *janua vitæ.*

This condition of fibrinous coagulation taking place in the right side of the heart or in the pulmonary artery, is one of the dangers that the subject of a surgical operation, wound or injury has to encounter, and not merely as the last act of a series of pathological processes—the result of exhaustive or prolonged disease—but an original and dangerous consequence of some blood change that has taken place as a result of the operation. What the nature of this change may be I am uncertain; it is an imperfect, or rather a post perfect, condition that may perhaps arise out of the presence of matters retained in the blood that should have ministered to the nutrition of the part removed, in cases of amputation or ablation of parts of the body; a condition somewhat analogous perhaps, to the retention in the body of a secretion, that should have been eliminated, or in cases where no removal of parts has occurred, to some disturbed condition of innervation, in which the blood itself is imperfectly elaborated, and rendered prone to this fibrinous coagulation. I have a strong suspicion that climatic influences are not without influence in originating this dangerous state. In Bengal, all are more or less under the influence of malaria; it is true, happily, that in a large majority of persons its effects are not generally perceptible, and malarious or splenic cachexia though common, is not universal. Still no doubt all are more or less affected; and as I have on another occasion remarked an attack of ague and fever is perhaps one of the least common ways in which it expresses itself. As we know that in aggravated cases of malarious poisoning, death of tissue and hyperinosis are common, so it is very possible that a more or less malarious state of the blood may determine its occurrence in many of the cases that occur in this country after wounds or operations. My recollection of the causes of death in Europe after operations and wounds, is not sufficiently accurate to enable me to institute any comparison from personal experience; but from what I have read and noted of what is said on this subject by authorities in Europe, I am inclined to think that either this cause of death is very unfrequent or has been but little noticed there.

I do not wish it to be understood that I regard this as altogether due to a malarious condition of the blood. I know that, although it may not have been noticed as a result of surgical operations, Dr. Richardson long ago pointed out its tendency to occur in exhaustive diseases, under circumstances which, however low and depressing, were not, at all events, suggestive of what we understand by malaria in this country; nor can I help thinking that a pathological state of the blood capable of producing so many important changes as malaria does, may have something to say to this also.

In considering the question of a surgical operation here, one of the first and most important inquiries made is, whether there be any indication of malarious blood poisoning, as evidenced by anœmia, enlarged spleen, or liver. Such conditions being present no operation that is not necessary to preserve life from present and imminent danger, is attempted; and if the urgency of the case should be such as to demand an operation; or if in those doubtful cases where one has to balance between the present inconvenience and the remote dangers of some surgical condition, or the evil chances of a state of health which, though perhaps not absolutely indicative of malarious poisoning, is not free from a suspicion of it, we do operate; we know that either gangrene of the wound, some pyæmic condition, or the sudden, rapid, and fatal fibrinous formations in the right side of the heart may be dreaded.

In the April number of the *Edinburgh Medical Journal* of 1870, I noticed the following remark by one of the most scientific of the rising generation of surgeons—Mr. Annandale—in reference to an amputation at the hip-joint. Page 883.

"The disease in this case was a cancerous tumour affecting the lower third of the femur, and the patient lived until the fifth week, when he was suddenly seized with difficulty of breathing, and died forty hours after. The post-mortem examination of this patient showed a partially decolorized clot in the pulmonary artery.

The surfaces of the flaps were firmly united; there was no abscess in the acetabulum,—there were no morbid traces of pyæmia."

I have no doubt that if Mr. Annandale will remark the cause of death, especially in all cases that occur after great operations where there is a constitutional cachexia, or where a large portion of the body has been removed, he will find that this cause of death is not unfrequent.

If such be the case, we can easily understand how it is that the group of unfavorable conditions making up what Sir J. Simpson calls "hospitalism," with malarious cachexia superadded, may determine the occurrence of these coagula : and an additional reason is furnished for the isolation and segregation of surgical patients who have to undergo, or who have undergone, operation. It points also to the necessity for most watchful care and prophylactic treatment, both before and after the surgical operation.

# GUNSHOT WOUND; AMPUTATION AT THE HIP-JOINT.

By J. Fayrer, M.D., F.R.S.E., Surgeon, Bengal Army.

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On the 25th September, 1867, a consultation was held at the Officers' Hospital, in Calcutta, on the case of Lieutenant H., who had been accidently wounded on the 12th of the same month, by a rifle shot, which had penetrated the gluteal region, and fractured the head and neck of the femur.

The patient had been a passenger on board a troopship, and met with the accident when out shooting at night, with a a friend, in the Island of Ceylon. The circumstances were briefly as follows:—

In pursuit of large game in the jungle by moonlight, they had taken different paths, and believed they were widely separated. About 2 or 3 in the morning, the attention of one of the gentlemen was called by his guide to a herd of wild animals 40 or 50 yards distant. He raised his rifle and fired, and to his horror found, on approaching the object, that he had wounded his companion, whom he believed to be distant several miles. The injured man, when struck, was dressed in a grey, shooting suit, and was crawling on all fours, probably to approach the game without being seen. The bullet from a Snider rifle struck him just over the left tuber ischii, and lodged. He lost a considerable quantity of blood whilst being carried to the nearest habitation, some miles distant; and there, when the medical officers arrived, the nature of the wound was examined. It was found that the ball had grooved the tuber ischii, passed on towards the neck of the femur, and there lodged. There was no evidence of its having entered the pelvis, and the fracture of the neck of the femur was not then detected, doubtless owing to the fact that the capsular ligament had not been much injured by the passage of the bullet. He was taken on board the ship, as, owing to the heat and damp of the climate, and for other reasons, it was deemed better that he should go on to Calcutta; and after a stormy voyage he arrived at Fort

William on the 24th September. He had been tended with the greatest care and skill, but his sufferings had been great, the discharge very profuse, and had required the use of frequent doses of opium. There had been considerable irritative fever, occasional delirium, and consequent wasting and debility on the passage. Some small fragments of bone, and the basal cone of wood of the Snider bullet, had been removed from the wound. I saw him first at 10-30 a.m. in consultation with several medical officers, and on placing him under the influence of chloroform, an exploration and thorough examination of the wound were made. His pulse was then 128; he was slightly delirious; and the discharge from the wound was fœtid and profuse. The constitutional disturbance was well marked: the rapid pulse, profuse perspiration, and quickened respiration were suggestive of the commencement of pyæmic mischief, though no rigors had, as yet, occurred. The respiration is said by the medical officers, who had seen him during the previous few days, to have been at times quick and catching. He had also a clay-colored diarrhœa. I observed, on exposing the limb, that the foot was everted, and the leg shortened about two inches, with a marked rounded prominence of the left hip about the trochanter; the skin was smooth and glazy, with the superfinal veins well marked. On grasping the head of the bone, and making extension and rotation by the foot, crepitation was apparent, and on introducing the finger into the wound, now a large suppurating sinus, fragments of bone were detected, and the fractured neck of the femur, with part of its head, detached and left in the acetabulum, were apparent. The ischium was found to have been grooved by the ball.

It is to be observed here, that the state of matters had entirely changed since the wound was inflicted: the capsular ligament had given way in the suppuration and sloughing that occurred in the track of the ball, thus allowing the shortening of the limb to take place,—for there was none, it is reported, when the first examination was made,—and the portions of dead and comminuted bone to move more freely on each other, thus making the crepitus apparent. The wound also had become much enlarged by sloughing of the track of the ball, and allowed the finger to enter and examine freely.

The nature of the injury having been so far determined, consultation was held as to the treatment, and it was decided that the only hope of saving life lay in an operation, which considering the extent of injury, not only to the neck of the femur, but to the ischium, the cancellated texture of which was opened, and to the soft parts from sloughing and suppuration about the head and neck of the bone, and in the track of the ball, should be amputation at the hip-joint. As no pelvic injury seemed to have been inflicted, his urine was natural, as no pyæmic visceral complication had yet occurred, and considering his youth and previous healthy constitution—he was only 20 years old—it was thought that this operation offered the only chance of life, though it was admitted that it was at the best a poor one. His consent and that of his friends having been obtained, it was determined that the operation should be performed as soon as possible, and 3 p.m. was the time appointed.

Accordingly at 3-30 p.m. he was brought under the influence of chloroform by Dr. Dale, Garrison Surgeon, and the operation performed.

Entering the point of a long amputating knife, about two inches from the anterior superior spine of the ilium, in a line leading to the great trochanter, I transfixed the anterior part of the thigh, the point grazing the bone as it passed, and emerging about three inches from the anus. The artery was commanded by Professor Partridge, who, following the knife, as the anterior flap was cut, seized and compressed the main trunk as soon as it was divided; the limb meanwhile being depressed by Dr. Hume, C. B., V. C. no difficulty was found in passing the knife between the broken fragments of the neck of the bone, in cutting out the posterior flap and detaching the limb; the proceeding occupying altogether between 20 and 25 seconds. There was considerable oozing from small arteries and veins. The large vessels, femoral and gluteal, were secured, and then the portion of the head of the femur, still attached by the round ligament, was removed from the acetabulum. All bleeding points having been secured, the flaps were brought together with silver wire sutures. He became very low towards the latter part of the operation; the bleeding points being so numerous that many ligatures were required; but under the influence of stimulants, he rallied and was put to bed.

His pulse rose, and reaction commenced,; but although he was closely watched, hot bottles and sinapisms applied to the limbs, and over the heart and stomach, champagne and ammoniated stimulants given, he never thoroughly rallied. About an hour and a half after being put to bed, his breathing became much accelerated, and he sank and died quietly at 6-40 P.M., about three hours after the operation.

The quantity of blood lost during the operation was small, and he did not lose a drop after its completion. His constitutional powers were exhausted, and he never completely rallied from the shock. Death, I believe, was accelerated by the rapid formation of fibrinous coagula in the right side of the heart.

I should note that, after removing the limb and the fragment of the head of the bone left in the acetabulum, my finger entered a large sloughing cavity above, internal to, and behind the neck of the bone; from this, the bullet, split into three longitudinal pieces, with some fragments of bone were removed. Before bringing the flaps together, the remains of the sloughing capsular ligament, and some shreds of sloughing muscle, were also dissected away. The external portion of the margin of the acetabulum was found to be roughened and partially stripped of periosteum.

The body was examined the following morning at 11-30 a. m.; decomposition had not perceptibly commenced. The thorax was opened, and the lungs were found to be partially collapsed. There were patches of lobular hypostatic congestion, but for the most part they were pale and exsanguine. In the lower lobes there were one or two small patches of commencing pyæmic mischief, but they had not advanced to disorganization.

The pleuræ and pericardium were quite healthy.

Heart, natural in size and healthy in structure; valves, all competent. But the right ventricle was nearly filled with a firm adherent fibrinous anti-mortem clot, and besides it there was a post-mortem colored coagulum. The fibrinous clots extended far into the pulmonary arteries. The right auricle also contained a small fibrinous clot. The left ventricle and its valves were quite healthy. The left auricle contained a small fibrinous clot. The exsanguine state of the lungs corresponded to the obstructed pulmonary circulation.

*Abdomen.*—The liver healthy, pale and rather fatty; spleen and kidneys quite healthy; intestines, healthy. The peritoneum covering the bladder and the pelvis had a darkened appearance, probably from decomposition; no trace of any injury in the pelvis. But corresponding to the portion of the acetabulum, denuded of periosteum, there was a small collection of pus in the subfascial areolar tissue of the pelvic cavity.

In this situation the soft parts, external to the peritoneum were matted together, as if by inflammation. I removed the left os-innominatum for more perfect examination, and found that the tuber ischii had been injured by the ball: it was grooved, and its cancellated tissue laid open. It was also broken across near the spine, and the ramus was also fractured: the fracture ran up to the top of the acetabulum, the outer portion of which was rough and denuded of periosteum. There was also a fissure in the acetabulum itself. These fractures were all fissures, and involved no separation of the fragments.

## Remarks.

This is the only instance in which I have seen the effects of the Snider bullet, and I should have expected, knowing the great force and velocity with which that projectile travels, that it would have passed right through the limb, struck at a distance of only 50 yards, notwithstanding the obstacle it met with in the neck of the femur. The force of the ball however, seems to have been spent in traversing the gluteal region, grooving the ischium, and breaking the head and neck of the femur into three pieces The part of the neck actually traversed by the bullet presented a comminuted groove, and some small fragments knocked off lay in the wound or in the foyer of pus, and sloughing tissue, from which the ball was removed after the amputation.

With reference to the operation, and why amputation was preferred to excision? The soft parts were so much disorganized, the pelvic bones were injured, and the patient's constitution had been so much tried already by suppuration and irritative fever, with evident indications of incipient toxæmia, and knowing the great tendency in this place to osteo-myelitis in divided bones, it was considered that if he could survive the shock of amputation the subsequent chances of recovery were better than after excision, which would have left the suppurating cavity, and a divided long bone, as a probable source of future pyæmic poisoning, should it, as was very probable, become the subject of osteo-myelitis. He bore the operation very fairly, and his condition, when it was undertaken, although low, was not by any means such as to render success impossible. The loss of blood was not very great, nor was there any difficulty or delay in the amputation.

Reaction commenced, but as I believe the rapid supervention of the formation of fibrinous coagula in the right side of the heart, or rather aggravation of it in an already incipient condition, prevented its perfect re-establishment, and he sank, as many other surgical patients do, not only from the shock and exhaustions, but from the sudden interruption in the pulmonary circulation.

The medical officers who saw the patient were :—

Dr. C. A. Gordon, C. B., Deputy Inspector General.
Dr. Muir, ditto ditto.
Dr. Hume, C.B., V.C., Surgeon-Major.
Dr. Thompson, Surgeon 76th Regiment.
Dr. Macnamara, Staff Surgeon.
Dr. Fayrer, Professor of Surgery, Surgeon B.M.S.
Dr. Partridge, Professor of Anatomy, Surgeon, B.M.S.
Dr. Dale, Garrison Surgeon, B.M.S.
Dr. Powell, Garrison Assistant-Surgeon, B.M.S.

# A CASE OF APHASIA.

By J. Fayrer, M.D., C.S.I.

The following notes were taken at the time of a very interesting case of aphasia that recently came under my care. The patient was an English officer, holding an important post; he was about 52 years of age, and of about 30 years' Indian service. During late years he had suffered much from chronic diarrhœa and anœmia; a recent visit to Europe had, however, somewhat re-invigorated him. He was of spare, but active figure, and of regular and temperate habits; very intellectual, and much given to study. The duties of his office were of an important and responsible nature, and just before the illness, for which he came under my care, they had been unusually onerous. He had, moreover, suffered much anxiety of mind and domestic affliction, from the illness and death of a very near relative. He had lived alone, and had almost entirely secluded himself from society since his return from Europe some months previously; but lately, his friends had induced him to go out a little, and he had apparently enjoyed the relaxation and change.

It was on June the 8th, (the weather being intensely hot), that I was called in, in passing his house; "he had just had a fit."

His servants, and one or two of his friends who saw him the day before, say he had been perfectly well up to 7-30 or 8 that morning. He had written a note early that morning just before he was taken ill, which was quite correctly worded—a note written to me I imagine, just when he felt the attack coming on, (and of which I append a copy); No 1 was not so correct.

His servants say that he was lying on his couch, when they suddenly saw that he was convulsed in the right side, and that, on going up to him, he was quite unconscious. It was 10-15 a.m. when I saw him; he was lying on his couch with his eyes closed, but opened them directly I spoke, and appeared to recognize me; he then began to talk incoherently. He appeared not only to be unable to collect his ideas, but also to have lost the memory of words; he kept repeating one, which resembled "played." This came in as the second or third word of every sentence he tried to give utterance to, and he spoke very fast. For example, after replying to my question, how are you? he said, "I am better, I have played," (then incoherence)—"I don't know what brought this on,—"I have paid, played, played," and then again he became altogether incoherent. His pulse was 120, and the radial arteries felt rigid. The cardiac sounds were natural, perhaps rather weak. I had repeatedly examined his chest before the attack, and the urine had also been frequently analysed, and nothing abnormal detected. Having lost a near relative from Bright's disease, he had been curious on this subject, and was constantly directing his attention to the state of his kidneys. The head was cool; the face pallid ; no paralysis; no alteration in the tone of his voice ; articulation was perfect ; his tongue was clean ; his bowels had acted freely that morning. His servants say, they thought him very well when he got up, and they were surprized to see the convulsions. They say, he was not hot at the time, and they noticed particularly, that it was the *right* side that was convulsed. Ice had been applied to his head before I arrived. The urine was examined, and found to be free from albumen. It was acid in reaction, and of normal sp. gr.

It occurred to me that the great heat of the weather—thermometer over 90°—had something to say to the attack, which probably indicated degenerate cerebral vessels, perhaps an embolism in one of them; or that there had been some slight hœmorrhage, or congestion, or transient interference with the cerebral circulation, and probably great general exhaustion of the nerve centres.

I ordered chloric ether and acetate of ammonia, and enjoined perfect rest and quiet ; ice to be applied to the head if it became hot, beef-tea to be given occasionally, and the bowels to be acted on by a simple enema. I saw him again at 4-30 p.m., and he looked pretty well; he replied in a word or two to every question, but immediately lapsed into a state of incoherence: he did not recur to the same word that haunted him in the morning, but he substituted his words, and seemed totally unable to grasp the one he wanted. He evidently understood all that was said to him, and tried to answer. A friend asked him to go and stay at his house : he thanked him, and was able to say he preferred remaining where he was; but he was quite unable to continue the conversation, and became incoherent. I left instructions that he should be well watched, and that beef-tea and the medicine should be given regularly.

June 9th.—He is in much the same state : pulse about 120 ; temperature of body somewhat high. He replies to a first question intelligently, but soon lapses into incoherence. I asked him to read ; he took the book and pretended to do so, but it was the most incoherent jargon ; all the time he looked quite intelligent. He has taken some nourishment, and is said to have slept. But for his shaven head, he looked fairly well. Cold had been applied to the head, and his bowels had been relieved. He was attended by a careful sick-nurse. In the evening I found him much the same; no improvement in his speech. Dr. C.—— had seen him with me in consultation at 1 p.m.

June 11th.—He remains much in the same condition: pulse from 110 to 120; skin cool, perhaps slightly feverish at times; the bowels act regularly. Takes readily all fluid food that is offered, and sleeps well. He is very quiet, tractable, and gentle; does or attempts all that he is asked to do. He walks with a peculiar gait, the body being bent forward: this is merely an exaggeration of his ordinary carriage. His tongue is slightly coated with whitish fur, and there is a peculiar and somewhat offensive odour in his breath. A small blister had been applied to the nape of the neck, which has risen well, but he does not complain of it in the least. He seems quite tranquil, and even happy; appears to recognize his friends, but he cannot tell, or rather, perhaps, he cannot remember, their names, or the words he wishes to say to them. Yesterday I asked him to name one of his friends who came into the room; he smiled and said,—"Oh that's go-up," and then he muttered some unintelligible words. He can reply to a first simple question, such as,—"have you slept or eaten well?" He answers "oh yes, or no," as the case may be; but the next question, however simple, puzzles him completely, and the reply, for he tries to answer, is the most incoherent nonsense—words without connection or meaning. I asked him to read yesterday, and gave him a book; he looked for his spectacles, put them on, then looked long and earnestly at the book, muttered a few words, and put it down. I then asked him to write a note; he sat down at his writing table to do so, put on his spectacles, took pen and ink, adjusted the paper and sat looking at it. Then, after about a quarter of an hour, repeatedly making efforts to begin, and saying,—"I can't write, oh that's just it!" he scrawled three figures of 8. To-day, the 11th, he read a few words correctly, and then became incoherent. He sat down to write at my request, and after about 20 minutes' delay, he produced the note No. 2, and then seemed so exhausted, that he was glad to go and lie down. It is difficult to say how far he knows what he is doing. In the midst of the simplest reply to a question, he puts his hand to his forehead, appearing to try in vain to recall the word or idea he wants. For example,—have you done so and so?" "Oh yes!" "Do you like it?" "Oh yes!" "Why?" "Because I—I—I can't work a bit, because it's a tight height." I have directed that he shall be very closely watched day and night, but he is tractable and gentle in the extreme. Nourishment with a little wine to be given frequently; an aperient when the bowels are confined; perfect quiet; the head to be kept cool; the feet warm, they are sometimes cold.

June 12th.—He seems rather better to-day: pulse 84; skin moist; head cool; bowels freely opened. I tried him with reading and writing; he read a few words correctly, but others he changed altogether. His writing is appended in Nos. 3, 4, 5. He answers questions pretty well, and looks as if he understands what he wants to say, though he is unable to remember the words he requires. He saw me looking at some numbers of "Good Words" lying on the table, and said there was something in them that was very good, but he could not remember what it was, or who wrote it; but he took one of the numbers up, and opening it at Gladstone's article on "Ecce Homo," then said, "take it with you." All this was said as by one in perfect health, but he lapsed immediately into incoherence. He has eaten and slept well; is in good spirits, and answers cheerfully to any question. The same treatment continued.

June 13th.—He looks better; is sitting up; slept well; and is taking food freely. Had a pint bottle of claret, and a glass or two of sherry yesterday. I asked him if he had read the newspaper, and he replied, "Oh yes; Eyre! Eyre, Chief Justice." He then took up the *Englishman* and read that "the Chief Justice, and all the *budges* (judges) had done so and so;" he made one or two mistakes, but on the whole had more command of words than he had yesterday. He remembered my name, and mentioned it several times, but he could not manage that of an intimate friend who had just then come in to see him. I asked him to write a note, and he at once cheerfully sat down to do so. The result is appended. (No. 6.) There is also a memo. of what he wished to have for tiffin (No. 7), and dinner, and an order that was to be sent to his wine merchant. (No. 8.) His skin and head were cool; pulse 84; bowels open; much less of the peculiar odour first noticed in his breath. Altogether, he looks much better and stronger; is cheerful; and walks with a less stooping gait. To-day I ordered a quinine mixture with tinct. nucis vomicæ.

The blister on the neck is still open. He takes a generous diet, and one pint of claret daily. On the evening of the 18th he was evidently better. He had written an order to his wine merchant, and some other notes. He read several lines with few mistakes; he seems much interested in doing this, but soon gets tired, and then he becomes quite unintelligible.

June 14th.—He is better this morning: pulse 80; has slept well; no heat of head or body; reads very well, miscalling only a few words. Talked quite naturally about many things, and especially about his illness; remembered being taken ill, but could not describe his sensation; remembered people also who came to see him, and the days on which they came, but could not always remember their names; even whilst talking he forgets words, or substitutes others of a similiar sound; at the same time he appears conscious of his defect of memory. He wrote a note (copy appended, No. 9), to a friend; he remembered his name, and appeared much amused that he did so. It had been stormy during the night, and this was evidently in his mind when he wrote; notwithstanding that he spoke so well, the wording of his written memo. No. 10 shews how far he still was from health. I should note that the handwriting from the beginning has been almost as steady and firm as when in his usual health. Dr. C—— saw him again with me to-day. He read and wrote for us; the reading had few mistakes, those mostly at the end of the sentences; the writing not nearly equal to the reading. He talked quite naturally on many subjects, and his general aspect was that of great improvement.

June 15th.—He seems to be doing well. He read a telegram in the paper, and commented fairly on it, but made several mistakes in his words; read part of a book equally well, and wrote memos. (Nos. 11-12) about his food; his writing falls far short of his reading or conversation. His physical health is good; bowels regular; pulse 80; temperature of body normal; his memory, in some respects, is not so good as it was a day or two ago: he could not to-day remember the names of common objects, such as a bell, a book, (the latter he called "bok"), a paper knife, or his intimate friend's name, but was quite sensible of his defect of memory, and smiled as he alluded to it. He takes his food well. and half a bottle of claret daily.

June 16th.—He is much the same, with memory, if anything, rather clearer. He reads with few mistakes, but his writing (No. 13), was not equal to his reading; he has a fair appetite, slept pretty well last night. It should be noted that during the last ten days rain has fallen, and that the atmosphere has been much cooler, which has been in his favor.

17th.—He is improving; had a good night; tongue clean; pulse 80; blister healed. He read an advertisement in the newspaper quite correctly, and spoke well, with occasional mistakes, of which he was quite conscious. I have cautioned his friends and the nurse against allowing him to sign or write cheques or letters.

18th.—He continues to improve and reads and writes (No. 14), better, forgetting fewer words. His physicial health is otherwise good.

19th.—He continues to improve; conversation perfectly natural; reading almost without a mistake; writing (Nos. 15-16), improved, but still not correct. An ordinary observer would now probably not notice any peculiarity in his conversation.

June 21st.—Doing well; speaks almost quite correctly. In reading he occasionally mispronounces a word, but seems aware that he has done so.

June 22nd.—He is doing well; speaks and reads correctly, or nearly so; writing (No. 17-18), improved, but still not perfect. Does not seem to be in quite such good spirits as he has been.

June 27th.—He is quite convalescent; has been out driving. His conversation and reading are now nearly perfect. He occasionally forgets or substitutes one word for another. He has a tolerably distinct recollection of all that has happened, and remembers being taken ill, but has no recollection of the fit. He is to leave India for Europe by an early steamer.

July 3rd.—He has left by the steamer, in all respects much better, but still he occasionally forgets a word.

He arrived at home safely, and for some time was much better for the change. Subsequently I heard, but without details, that he had some recurrence of the symptoms; the results of this attack I have not heard, but I believe he is at present (September, 1869), alive and well.

The following are specimens of his notes and memoranda written at my request during his illness. The writing generally was as good and firm as though he had been quite well. There are peculiarities which cannot be represented in print; often the initial letter of a word is obliterated and re-written, as though he had hesitated as to what letter he should use, and many marks and letters that are of necessity unintelligible, are left out, as they could not be imitated.

A gradual improvement in each note may be observed, but the composition was always inferior to his manner of expressing himself; and when he wrote the last of these notes, his conversation was almost without a mistake; most of these memoranda were signed in his usual bold and firm hand-writing; his signature, indeed, alone would not have betrayed any defect. But the notes themselves shew that, as Dr. Bastian would say, the condition of agraphia continued after that of aphasia had well nigh passed away.

No. 1. June 8th.
Please come wall and see me. Y.
8th August.

No. 2. June 11th, 1868.
I am so bad to-day, abad, all abad. Yesterday all ab—abeledu—all bide—blessed, blesse tut.
Js. Js. Js.
P. P. P. P. P.
Bless, bless.
Bless: 11, bless 11, blesse.
P. B. B. B.
P. P.

No. 3. June 12th, 8 a.m.
Wednesday.
I should nisbly a wark of blacking a boik of book if I ask.

No. 4. June 12th, 4 p.m.
Have any one a dundred any brere wone.
By belief was very ill. A dwellng; so derely a darèf; a waif all along light. At about a enayty brefest a baturfent about after a dayfeet about first day.

No. 5. 12th June also.

I am better, he is better, but ill a ill my bill a better ill i bill my better is a bouller ill I———

No. 6. June 13th.

It was bloying all the well, it was barring in bottle, it was sainty. It has been raining all the night; I have been very.

No. 7. June 13th.

Bacon. Begs. Begels. Spiripe Scink. Soups. Spitch Cock. Spinciple.

*This was what he wanted for tiffin.*

No. 8. June 13th.

Beshonath Law.

Claret wine as usual. Some for my tervan.

No. 9. June 14th.

You we have had an awnully lot of both, during last night it was training during last night, the train was tor-fully getting it.

No. 10. June 14th.

Swit Bread. Dinner. Soup. Spick lock. Brodline.

No. 11. June 14th.

I heems to have been pretty well and am as just as you are all. I am better than I was, but I hope in a few days I shall be able to do so as I well can.

No. 12. June 15th.

Something about two o'clock a bed of mutton to read. Then at night, I will have something to read at nice I will have some wine for me.

No. 13. June 16th.

It has been wet than it used to be. There is very little to be done for all the Englishmen to be said.

No. 14. June 18th.

I have been seeding the paper, and have been reading about all the news.

Kidneys for breakfast.
Spitch Cock. Soup. Roast mutton.
Wine. Bordeaux.

No. 15. June 19th.

Morning. Eggs and Bacon.
Tiffin. Mutton chop. Soup. Mutton or Beef.
Bordeaux.

No. 16. June 20th.

We have ordered fish and omelet.
There is nothing ordered for tiffin, as nothing is yet settleded.
Soup. Beef or Button.

No. 17. June 21st.

I am very much better than I have been for the last few times. I have ordered some breakfast, but nothing yet for tiffin and dinner.

No. 18. June 22nd.

I am quite well, and I have nothing to bother me about my head at all. I have not heard what we are to have in tiffin or T. Tinner. The T breakfast we are to have fish and omelet.

I have recorded this case in detail, as it illustrates some points in the pathology of the disease that have been much discussed by recent observers. The symptoms were exactly those described by Trousseau and others ; the loss of memory of words, even whilst the intelligence was comparatively good, was remarkably shewn during his recovery. The incapacity to write correctly whilst he was able to express himself almost clearly, was very illustrative of that phase of cerebral disease which has been termed " agraphia" by Dr. Bastian.

The convulsion on the right side, at the commencement of the disease, so far supports the views of Dr. M. Dax and others who localize the cause of the disease in the left cerebral hemisphere. Happily, the opportunity did not occur of ascertaining whether in this case the views subsequently promulgated by Drs. G. Dax and Broca, as to the precise localization of the lesion in the anterior and outer portion of the middle lobe of that hemisphere, near the island of Reil, and consequently close to the posterior portion of the frontal lobe, were correct. His recovery without paralysis, and the almost perfect restoration of the power of speech and writing seems, I think, to point to disturbance rather than functional structural change. Though the prematurely aged appearance, the rigid arteries, and other general indications of adipose and atheromatous degeneration, suggest the possibility of disturbed cerebral circulation, and point, perhaps, to the middle cerebral artery as the seat cf some transient interruption of circulation, or the temporary presence of a thrombus or embolon, whose origin is traceable to degenerate vessels. It is possible that congestion, or slight hœmorrhage, may have occurred from similar causes; and as the central ganglia were probably only slightly compressed. The symptoms, after the convulsion had passed, were confined to what was due to changes of a transient nature that had occurred in the left anterior central lobe.

It is possible that this may have been one of the protean forms assumed by cerebral exhaustion, the result of long residence in a tropical climate, exhaustive disease, and an overwrought brain; and that structural disease, in the conventional acceptation of the term, may have been absent, the pathological explanation being sought for rather in dynamical than material changes. In any case, it is impossible not to regard the future of one so affected with anxiety; and the chief practical lesson to be derived from such a case is the avoidance of a too protracted residence in a climate where we were not intended to live, as well as the early acceptance of those warnings which usually precede the breaking down of the vigor and force of the nerve centres generally, and the timely relaxation from oppressive mental work, as well as absence from the exhausting effects of a hot, damp, and malarious Indian climate.

Very little has been said about treatment; as far as the administration of drugs went, very little was needed. Rest, proper nourishment, and the absence of all excitement were the conditions necessary to enable Nature to repair the mischief, and restore the diminished power. Due attention was paid to the state of the bowels, and the head was kept cool, if ever the least increase in temperature suggested excitement of the circulation. A certain amount of wine was allowed with the food, for although a very temperate man, he had been accustomed to take a certain quantity of stimulants, and this certainly was not the occasion on which to withdraw the accustomed supply. A blister was applied to his neck, but I doubt if it was of any service, and I believe now he would have done just as well without it. I have strongly urged that he should never return to this country, and that his brain should not be overtaxed with work of any description.

# ON THE USE OF PETROLEUM OR EARTH-OIL AS AN ANTISEPTIC IN THE TREATMENT OF SURGICAL DISEASES.

By Dr. Fayrer, C.S.I.

I have recently been using petroleum, as an external application, on the antiseptic principle, in the treatment of certain surgical cases, and I subjoin a brief abstract of a few of those so treated, which, I think, so far warrant, the conclusion that it has been applied with benefit, as it possesses some, if not all, of the advantages assigned to carbolic acid for this purpose. The petroleum in question, was kindly supplied to me by Mr. Goodenough of the firm of Messrs. Mackillop, Stewart and Co., and is a dark oily looking fluid, with a peculiar, though not unpleasant, aromatic odour. It struck me that this hydrocarbon might be as efficacious as carbolic acid for surgical purposes; and as it is produced in this country and in Burmah, it might be obtained in large quantities and at a smaller cost than carbolic acid, and I have no doubt, its use might be extended over a wide range of hygienic purposes. The present memorandum has reference merely to its use as a surgical application on the antiseptic principle of purifying the air that obtains access to the affected surface. This petroleum is produced, I am told, in large quantities in Assam; and from this source, no doubt, an ample supply might be obtained, should it prove, after experiment, to be useful for therapeutic and hygienic purposes.

I have used it undiluted, or diluted with equal parts of oil, or glycerine, and whilst it certainly has some deodorising power, it appears also to have that of limiting suppuration, and of restraining the development of septic miasmata in the discharges, whose decomposition it probably retards.

It is also useful as a stimulating and detergent application in sloughing and ulcerating surfaces, and I have remarked, especially in one case of carbuncle, that it proved most efficacious as an external application. It is not irritating, or very slightly so, to raw surfaces, and I have not heard any complaint made beyond that of slight smarting, when it is applied to granulating and ulcerating wounds. The evidence of its virtue is as yet but limited, but it is such as to suggest the advantage of making further trial of what may prove to be a valuable addition to our surgical resources, and is one that has the advantage of being produced in the country.

### CASE I.

Judonath, aged 30, had a large ulcer above the right ankle with a sinus leading to the bone. The ulcer had been treated with carbolic acid dressing. Since the 30th April the earth-oil has been applied, and the ulcer is granulating healthily, is much contracted and is cicatrizing rapidly with very little discharge. The dressing causes no pain.

### CASE II.

Darai Sirdar had a cystic tumour, size of a walnut, removed from the root of the nose on the 12th April. The earth-oil dressing was applied immediately after the operation. The wound had nearly closed, without any suppuration on the 25th April. The integument being redundant however, a portion was removed on the 4th of May, and this wound dressed with earth-oil. It has healed satisfactorily, and he was discharged about the 18th. A small portion of integument sloughed; but there was almost no suppuration.

### CASE III.

Degum, aged 35, admitted on the 10th May, 1869, with a deep cut in the upper and inner side of the right arm. No arteries of importance divided. The wound was dressed with petroleum, and it healed rapidly with very slight suppuration.

### CASE IV.

Rajeshwary, a Hindoo woman, aged 65, admitted with an ulcer of considerable size in the right leg. There was a profuse ichorous discharge with considerable pain. It was dressed on the 30th April, with the petroleum. The discharge diminished, and the sore assumed a more healthy aspect. To remove thickening round the ulcer, liquor lyttæ was applied, and after this the ulcer rapidly granulated with very slight discharge.

### CASE V.

M. M., an East Indian, admitted 12th May, 1869, aged 49, with sloughing of cellular tissue of the palm of the right hand. Petroleum applied, and the sore assumed very rapidly a healthy action. The wound is now, 8th June, nearly healed.

### CASE VI.

Ghurmo, a Hindoo female, admitted 29th March, 1869, with a deep excavated ulcer exposing necrosed bone, near the left olecranum. She was evidently syphilitic. The wound was dressed with the petroleum, whilst internally potas: iod: and cod liver oil were administered. The sore healed rapidly; the diseased bone separated, and she is now nearly well.

### CASE VII.

Hurrish Chunder, aged 50, had a scrotal tumour removed on the 16th March, 1869. The wound at first was dressed with the carbolic-oil dressing, under which it was doing well. On the 30th April the petroleum dressing was substituted, and the wound continues to cicatrize most favorably, and without almost any suppuration.

### CASE VIII.

Mosum Ally, aged 35, had a moderate sized scrotal tumour removed on the 13th April, 1869. Carbolic-oil dressing was at first used. On the 30th April the petroleum was applied; the wound is granulating healthily, and with very little discharge. He is still in hospital.

### CASE IX.

Soorendro, aged 10, admitted on the 14th May, 1869, with iliac abscess. This was opened by making incisions through the abdominal parietes on the same date. The earth-oil was applied as a dressing, and the discharge was very slight. It increased on the 17th, but subsequently diminished, and the boy was discharged convalescent a few days later.

### CASE X.

Khosal, aged 35, admitted 10th May, 1869, eight days after receiving a very severe sword wound on the left hand; the metacarpal bones, except that of the thumb, were all divided. The wound was suppurating when he came in. He has done well since. A collection of matter formed in the fore-arm, which was let out. But the wound in the hand has cicatrized; other slighter wounds in the arms were dressed in a similar manner; and they have done well.

### CASE XI.

Chummun, admitted 8th May, 1869, for having had his left great toe crushed by a carriage-wheel. Earth-oil was used from the very beginning, and the sloughs separated on 15th March, 1869, and the wound cleaned by the 17th March, 1869; and it is now healing up with little discharge.

### CASE XII.

Babu Sheik had his ring finger removed on the 26th April, 1869, with the head of the metacarpal bone, for an injury. The earth-oil was used since the 29th. There was never any great discharge from the wound, which began to suppurate on the 30th. Granulations were so rapidly growing, that by the 6th, most of the iron wire sutures were seen half-imbedded within them. Sutures removed on 7th, and cicatrization began on the 9th, and he was discharged on the 20th cured. He never complained of much pain from the oil.

### CASE XIII.

J., aged 40, admitted on 10th May, 1869, transferred from the medical wards for an ulcer on the left shin. Earth-oil applied. The sore has contracted with hardly any discharge, and completely cicatrized.

### CASE XIV.

A., aged 30, admitted 2nd May, 1869, for ulcers in his right leg. Earth-oil used from the beginning, and liquor lyttæ applied on 10th May, 1869; the sores nearly healed, though on admission they were each about two inches square. They are now cicatrizing.

### CASE XV.

G. H. M., aged 28, admitted 6th May, 1869, for a cut in the popliteal space dividing the hamstring tendons. Earth-oil used from the beginning, and the wound has not yet suppurated, the flaps are becoming adherent.

### CASE XVI.

H., aged 25, admitted 7th May, 1869, from an incised wound below his right breast about 6 inches long. Dressed with earth-oil from the beginning, and it is now very nearly healed. He complained of but slight burning. The wound completely cicatrized.

### CASE XVII.

A European had a lacerated cut about 2 inches long on his forehead, which healed in about a week and a half without any discharge.

### CASE XVIII.

J. R., aged 39, had two contused wounds on the head on 12th May, 1869, they were dressed with the earth-oil on the next day. The sloughs separated on the 17th with some bleeding; the wounds have since been healing with slight discharge.

### CASE XIX.

Acham, a Chinese, aged 34, came for a large carbuncle on his back, of a fortnight's duration: it is full of dark sloughs, and there is much pain. It is dressed with the oil, the discharge has diminished, and the sore looks healthy. He ultimately recovered completely.

### CASE XX.

A native, aged about 45, was admitted in June, with a wound in the left iliac region. A bull had struck him with his horn, and opened the abdominal cavity. The intestines protruded, but were returned. He recovered rapidly with petroleum dressing, without a single bad symptom.

# HEPATIC ABSCESS.

### By J. Fayrer, M.D., C.S.I.

An English officer, aged 29, of tall, slight figure, and apparently of delicate constitution, came under my care on the 4th September, 1869. He had just arrived from a station in Oude, where he had suffered from the disease for which he was leaving the country. He had been in India about three years, and had had good health previous to the present attack, which commenced in July last. The following are his own brief notes of his case before he reached Calcutta:—

13th July, 1869.—"Severe headache in the morning and during the night, was exposed to the sun all afternoon; staid in the house next day, and took aperient medicine. 15th to 22nd July.—At duty, but not feeling well. 21st.—Whilst riding home in the morning, got what appeared to be a stitch in the side. 22nd.—Under medical treatment; kept at home and took aperient medicine. 24th.—Pain much increased; eight leeches were applied to the side; took aperient medicine; during the evening had a shivering fit. 27th.—No better; twelve more leeches to the side. Between the 3rd and 15th August had three blisters over the liver; pain inside continued much the same. About the 18th August the original pain gave place to a diffused pain throughout the right side; counter-irritants were applied. 25th.—Observed a slight swelling about four inches from the spine and just below the ribs. 28th.—It was pronounced to be an abscess, and I was sent to Calcutta to appear before medical board. During this time the bowels never moved without medicine. 1st September.—Started for Calcutta, bore the journey very well."

He arrived in Calcutta on the 4th September, and I saw him that morning. He looked weak, anæmic and emaciated, with a sallow tinge of the skin, and the general aspect of a man suffering from liver abscess. On examination I found that the liver was enlarged downwards, posteriorly, and that just below the last rib in the right lumbar region, about four inches from the spine, there was a prominent fluctuating swelling, which was evidently a liver abscess pointing posteriorly, and rather low down. He had no fever; pulse 100; skin cool and moist; no great pain; little sense of fulness and uneasiness in the right side; breathing slightly embarrassed. He was taking no medicine; bowels had been confined for two or three days, but he felt no inconvenience from it and his tongue was clean, moist, and the papillæ natural. His appetite was by no means bad. It was evident that he was not now suffering constitutionally from the presence of pus.

On the 5th, after rest and a good night, I opened the abscess at the most prominent point, having made an incision through the integument, and then inserted a large trocar and canula. I drew off about 18 ounces of thick pus, which had the peculiar appearance and odour of that of a liver abscess.

I immediately syringed out the cavity with a solution of carbolic acid, ʒi in a pint of water. Left the canula in, and plugged it with lint soaked in carbolic acid one part, glycerine four parts; a bandage and tapes secured the canula in situ. I ordered him also a solution of quinine and sulphuric acid in calumba. Diet of soup, bread and milk, a little wine; the latter he did not like at first.

In the evening I again emptied the cavity of about eight ounces of pus, and washed it out as in the morning. He had no fever during the day. His pulse has come down since yesterday, but is quicker than it was in the morning. He feels well; much relieved by the removal of the pus; an enema was given to-day, but it did not relieve him; ordered two aperient pills.

September 6th.—Drew off about eight ounces of pus this morning, and about four more in the evening; removed the canula, as it was irritating him; kept the wound distended with lint soaked in carbolic glycerine. The cavity is washed out on each occasion that the pus is removed with the carbolic acid lotion. Bowels have acted freely; the pills were aided in the morning by a sulphate of magnesia draught. He has taken his food fairly, and now takes beer instead of wine; slept well; looks and feels better; pulse 88 in the morning, has quickened a few beats in the evening, but there is no apparent increase in temperature.

8th.—He has been doing well; the quantity of pus diminishing daily, this morning about six ounces, in the evening not more than two. He takes food well; sleeps well, and is in good spirits.

9th.—He improves daily. This morning about two ounces of pus were removed, and this evening less than half an ounce. He takes his food and beer, and sleeps well; went out for a drive this evening. Is to take an aperient draught to-morrow morning, as the bowels are confined. Has had no fever; pulse 78 to 84.

10th.—Barely half an ounce of pus this morning, and about a quarter of an ounce in the evening; the cavity of the abscess is contracting rapidly; pulse 74 this morning, up to 80 in the evening. He is looking much stronger.

11th.—He was slightly fatigued by the preparation for sailing to-morrow. About three-quarters of an ounce of pus, which was thinner this morning; pulse slightly quicker, but he feels and looks well. In the evening less than a drachm of pus. He is well in all respects, and seems to be rapidly convalescing. He sails to-morrow morning for England.

This is a good example of simple abscess of the liver resulting from the effects of a hot climate. There is no history of previous diarrhœa or dysentery, and it apparently commenced by congestion terminating rather insidiously, as so frequently happens in inflammation and suppuration, the pus probably having commenced to form when the rigor occurred on the 24th, about 12 days after the first symptoms of congestion made their appearance. About this period, as inflammation involved the surface, the pain increased and continued, the perihepatitis, of which it was an evidence, proving so far salutary in causing adhesion of the lower portion of the right lobe to the parieties, and thus preventing extravasation into the peritoneal cavity.

There is every reason to hope that the abscess is a single one; the history of the case renders it probable, as there is no reason to believe that it was due to septic absorption from previous dysentery or ulceration of the intestines.

The prognosis is also hopeful, as latterly he had been free from any constitutional fever such as would be caused by extension of the suppuration, and the rapid contraction of the cavity, after evacuation of the pus, evinced the tendency to repair by cicatrization. The injection of the cavity with carbolic acid solution was attended with the best results, as I think that the antiseptic was beneficial in aiding the rapid contraction of the cavity.

I believe that his chances of complete recovery are enhanced by the change to sea, as whatever the capacity for repair might be, I feel convinced that it must be increased by the change of climate, and is more likely to proceed to perfect recovery at sea than in the damp and exhausting heat of September in Calcutta.

NOTE.—A report from Galle says he is nearly well, and that he was able to go on shore for exercise with other passengers.—J. F.

# IMPETIGINOUS ERUPTION OF THE FACE CAUSED BY PERIPHERAL IRRITATION OF BRANCHES OF THE TRIGEMINAL NERVE.

By J. Fayrer, M.D., C.S.I.

*(Re-published from the Indian Medical Gazette.)*

G. S.——, aged 43, a West Indian negro, steward of a ship, was admitted into the Medical College Hospital on the 9th of May, 1870, suffering from great pain in the right side of the face and jaws, owing to a severe impetiginous eruption on half of the lower lip, the upper lip, cheek, inside and out; and extending to the anterior aspect of the ear. The face was considerably swollen; the lymphatic glands were engorged; there was a profuse sero-purulent discharge from the eruption, and some deafness owing to partial occlusion of the meatus auditorius. Two teeth, canine and bicuspid, in the upper jaw were carious and painful; the gums were spongy and tender. Two or three teeth in the lower jaw were also decayed, but not painful.

It appears that he has suffered from tooth-ache more or less for the last ten years, and that he had a molar tooth extracted some time ago; he has had facial neuralgia, but no eruption previously. He is otherwise in fair health, and is temperate.

The eruption extended from the right half of the lower lip, where it commenced abruptly as though a line were drawn dividing the lip into a sound and a diseased part, to the upper lip, to the inside of the cheek, and from the angle of the mouth, to the anterior surface of the ear, but much less developed as it ascends. The tongue was coated, but not more so on one side than the other. The discharge profuse, and the swelling and pain considerable. It appears that, on the 5th of May, he exposed himself, when heated, to a current of air, and caught cold. Neuralgia came on, and, on the following day, a severe attack of fever ushered in the eruption, which came out suddenly.

Simple treatment with salines and quinine, and the application of soda ointment relieved him, but the eruption continued to increase. On the 11th May, the two most painful teeth in the upper jaw, canine and bicuspid, were extracted. This operation was followed not only by immediate relief from all neuralgia, pain and tooth-ache, but by the rapid drying up of the eruption, which in three days had almost completely disappeared. He was discharged on the 23rd completely cured; the eruption had been well for several days, but he remained until his mouth was well.

I should note that, on the area of the eruption, on the part of the skin not involved in the impetigo, several very dark patches of pigment were deposited.

This is an example of disease induced over the territory of distribution of part of the trigeminal nerve, by peripheral irritation of one of its branches.

The diseased teeth were, no doubt, the cause of disturbed nutrition, through the reflex transference of perverted plastic force, and the area of the eruption corresponded to that of branches of the superior and inferior maxillary division of the right fifth nerve. The removal of the canine teeth was followed by immediate subsidence of the disease; showing that they were the proximate cause of the mischief.

Irritation of one fibril of a nerve constantly gives rise to pain, or neuralgia, in the site of distribution of other filaments of the same trunk, and there is no more frequent example of it than in facial tic. Disturbance of the formative or plastic force is also not uncommon, as is seen in many cases of the same disease where congestion accompanies pain. But we less frequently see illustrations of this pathological law as illustrated by actual lesions, such as impetigo or eczema. In the *Medical Gazette* of 1st April, 1867, I recorded a case in which irritation of a branch of the ophthalmic division of the fifth nerve gave rise not only to an impetiginous eruption, but also to destructive inflammation of the eyeball itself. In the present case, happily, the result was less injurious, though quite as illustrative, and was speedily removed by extraction of the offending teeth, which were the seat of irritation.

In the case of the diseased eyeball, the superior division of the fifth nerve was the seat of the irritation; whereas in the present example the middle and lower divisions, judging from the area of the impetigo, were involved; and removal of two upper teeth being sufficient to cure the disease seems to point to the branches of the superior maxillary as being mainly concerned, whilst the eruption on the lower lip, the side of the face, and the anterior surface of the ear prove that the inferior maxillary was not faultless.

That irritation of the peripheral distribution of a dental branch of the fifth nerve should give rise to disturbed innervation or nutrition in the tissues supplied by another branch of the same nerve is easily understood: the reason why this particular form of disease should be induced is not so apparent, and is as difficult of solution as are the numerous examples of different diseases being originated by similar causes that come under our daily observation: as for example why malaria should give rise to fever in one; neuralgia in a second; convulsions in a third. The true explanation no doubt is to be sought in some peculiarity of the individual.

## *Urethral Fever—death from fibrinous concretions in the right side of the heart.*

W. H., æt. 39, an English sailor, living in Calcutta, a powerful muscular man, and apparently in perfect health previous to the 18th of June 1870. On that day he suffered from retention of urine which he attributed to a slight excess in drinking a day or two before. On the morning of 19th June, he applied for relief at the out-patient department, and said he had suffered from slight stricture for the last five or six years, and that, on several similar occasions, he had had retention of urine. No. 8 catheter was passed without difficulty, and the urine drawn off; he would not remain, though invited to do so, for treatment of the stricture. In every other respect he appeared, and said he was, perfectly well. He was a remarkably fine-looking man, and very intelligent. He had his home and family in Calcutta, and therefore did not wish to remain in hospital.

He returned to hospital at 3 P. M., saying he felt very ill, and was in great but undefined distress about his stomach. He was at once admitted, and the following account was given of his condition since the morning. Soon after the catheter was passed he had a chill (probably a rigor) and then became feverish, very restless, and so delirious that his friends were obliged to bring him to the hospital.

It appears that he had passed some urine tinged with blood after his return home; his bladder was apparently empty on admission. He was feverish and restless, evidently in great distress, complaining of intense thirst and pain across his abdomen or lower part of the chest. There was some tympanitis and the tongue was coated. A cathartic enema and hot fomentations to the abdomen were ordered, and these appeared to give him relief. Two cathartic pills were ordered at bed time. On the 20th June, the pain seemed to have localized itself in the right hypochondriac region, and there was excessive pain on pressure over the liver; his breathing was hurried, and his countenance anxious; he still seemed in considerable distress.

He had had several loose but scanty motions during the night; no urine had been passed since admission, but he may have passed it at stool. There was now found to be dulness on percussion over the base of right lung, but otherwise it was natural. The breathing was hurried and gasping, but air entered freely into the lungs. Turpentine fomentations, effervescing draughts with stimulants, etherial and ammoniacal, were freely given. Sinapisms, were applied over the heart.

The distress and dyspnœa rapidly increased; the breathing became more hurried and gasping, and he complained not only of this, but that something was choking him; a stimulating emetic was given, it acted slightly. At about 10-30 P. M. he passed water. No improvement however took place, repeated stimulants were administered by the mouth and rectum. The difficulty of breathing increased, and he died, as the House Surgeon's notes have it, "in a sudden fit of gasping," a few minutes before midnight. He was perfectly rational and conscious from the time of admission to the moment of his death, and his struggle for breath was most distressing to witness.

The weather being very wet and damp, the body was examined ten hours after death.

The lungs were hypostatically congested, the right most so, and one portion of the middle lobe was solidified and contained a small patch, the size of a pea, like a pyæmic patch. The lower lobe was also hepatized. There were one or two very small patches of tubercular deposit in the apices of the lungs; with this exception, they were healthy and crepitant throughout.

The pericardium contained a small quantity of straw colored serum. The heart was normal; the cavities contained firm adherent fibrinous clots. That on the left side extended from the auricle into the ventricle and into the aorta for about three inches. That in the right was larger, and extended from the auricle, through the ventricle, into the finer ramification of the pulmonary artery.

The pleuræ were normal.

The liver was rather large, but apparently otherwise normal. There was no sign of inflammation in its substance or on its surface. The spleen was natural. The kidneys were congested, and large; capsules easily separated, and granular degeneration apparently commencing. The other viscera and the peritoneum were perfectly healthy.

The bladder was slightly thickened, and the urethra was slightly strictured, in front of the bulb; there was no wound, it was slightly congested; where it had bled after the catheter, but there was no false passage. The prostate was natural, and the tissues about the neck of the bladder were natural.

This is a very striking and interesting as well as instructive case. A man in the prime of life, in good health, with the exception of a slight stricture, which was only troublesome when irritated into spasm by such irregularities as that of taking a little more beer than usual; a steady intelligent and otherwise temperate person, suffers from retention of urine, due to a slight excess a day or two previously. He applies for relief at the hospital, and is relieved at once by the passage of a No. 8, catheter. He returns home, feels chilly, has rigors, and this rapidly followed by fever and delirium; he passes urine tinged with blood after his return home. The fever is attended with intense restlessness and distress, severe pain in the right hypochroniac region, and pit of the stomach follows. Rapid deep and gasping breathing, with the greatest precordial distress increase, and go on getting worse and worse, until the patient dies in great agony of breathlessness at about midnight, or forty hours after the catheter was passed. His intellect was perfect to the last; urine was secreted and voided not long before death. It is clear therefore that the symptoms were neither due to uræmic nor cholæmic poisoning nor to any cerebral disorder.

There was nothing to point to cholera or other exhaustive disease as the cause of death. Air entered the chest freely, and his voice was natural to the last; he did not die of asphyxia. The sounds of the heart were normal; heart disease was not present. There was evidence of neither peritonitis nor other acute inflammation. What then was the cause of death?

The post mortem examination revealed a congested state of the base of each lung with consolidation of a small portion and a patch of broken down tissue about the size of a pea. The pleuræ were healthy, and the pericardium contained a small quantity of fluid. Neither of these conditions were sufficient to cause death. The abdominal viscera it is true were not absolutely healthy, for the liver was slightly enlarged, and the kidneys were congested and in an incipient state of degeneration. The bladder prostate, and tissues about its neck were generally healthy. The bladder was somewhat thickened, in consequence of a slight stricture situated just in front of the bulb of the urethra. Through this an instrument had been passed. There was nothing in the abdomen to account for death. The patient's state up to the moment of his death, and the fact that urine had been secreted and voided very shortly before death, prove that neither uræmia nor cerebral mischief were the cause of death. The state of the bowels and secretions equally demonstrated that it was not due to cholera; but on opening the heart, it was evident that the diagnosis was correct, that the formation of fibrinous coagula in the heart had destroyed life. The coagula were firm, decolorized and adherent, and on the right side not only obstructed the auricular, ventricular and arterial openings, but extended far into the branches of the pulmonary arteries ramifying like the branches of a tree.

I have repeatedly noticed this condition as a cause of death in surgical cases, but I have never seen one more striking or more uncomplicated than this, and it is another illustration of a pathological law of great interest. I have before expressed my suspicions that malaria has much to say in inducing the condition of blood in which this fibrinous coagulation occurs as a result of some disturbance of the innervation by a surgical operation; in this case the simple one of passing a catheter through a slightly strictured urethra was the exciting cause. The patient cannot be said to have been, strictly speaking, in a healthy condition, tho' he appeared in perfect health and no lesion was discovered that would account for death, although sufficient existed to suggest how, with the addition of the shock of the operation, and the consequent urethral fever, the fatal blood change and consequent cardiac-apnœa were brought about.

Something was said about his recently having suffered from intermittent fever, but there is no precise information on the subject recorded. Be that as it may, he had none of the appearance of a person suffering from malarious cachexia. But no one in Bengal can be said to be exempt, especially at this season of this year, and I am convinced that this malarious influence which affects all, more or less, is in a person of irritable constitution and especially in those suffering from stricture, a predisposing cause of that dangerous condition, urethral fever, in which, under certain conditions, fibrinous coagulation is likely to occur.

It has long been known that death may occur rapidly from this cause in puerperal patients; and that in diptheria, croup, cholera, and other exhaustive diseases, it is not by any means unfrequent; but in such cases, where the blood must necessarily be in an altered condition, and the muscular fibre of the heart weak, although the precise nature of the change may be unknown, it is not difficult to understand why the fatal result should occur. But in cases such as the preceding, and in many others where fatal Cardiac Apnœa has supervened suddenly from fibrous coagulation, obstructing the pulmonary circulation after surgical operations, when the patient appeared to be doing well; it is more difficult to comprehend, and as I think, and have frequently suggested, is a subject of great surgical importance, though one, that as a cause of death, has not attracted the attention it merits.

I allude especially to that form of Cardiac Apnœa, due to obstructed pulmonary circulation from fibrinous concretion in the right cavities of the heart, occurring in persons in whom there are no obvious indications of cardiac disease. That it should occur in such persons is reason the more why, in a hot and exhausting climate, it should take place in those who are the subject of fatty degeneration of the heart, or about a heart which though not itself adipose, is loaded with fat externally; or where there are either pleuritic or pericarditic effusions, or where the ventricles are dilated and the muscular fibre atrophied. In such persons indeed, the presence of fibrinous concretion may not be needed to bring about the fatal Apnœa. The temperature of a night in May or June, in Calcutta, the shock or after effects of an operation, may be sufficient, and the patient after a short and distressing struggle of breathlessness perish, notwithstanding every effort that can be made to save him. But I would repeat that, when it occurs, as it occasionally does to a person in the prime of life, and in whom there is no reason to suspect any such predisposing cause, it becomes a subject of very important enquiry as to what is the determining cause of this dangerous condition, and it indicates another among the many recognized dangers to be apprehended by the Surgeon.

## *Recto vesical fistula, and vesical calculus, Death from Pyæmia, and the formation of fibrinous Coagula in the right side of the heart.*

Conductor H., aged 44 years, was admitted into Dr. Fayrer's Wards of the Medical College Hospital, on the 16th December 1868, suffering from the effects of a severe accident which happened to him eight months previously at Darjeeling. He was, notwithstanding all the suffering he had undergone, a stout, healthy-looking man, apparently of steady and temperate habits.

The history of his case, up to a short time before leaving Darjeeling, is so well described in the following statement that I give it in detail, as it came to me.

"Conductor H., aged 43, and 26 years resident in India, of temperate habits, generally enjoyed good health. On the night of 15th May 1868, about 10 o'clock, was returning to his home, at Jellapahar, Darjeeling, but owing to the darkness missed his way and slipped down the hill-side a few feet, alighting on a stake, which pierced the right gluteal region and penetrated the bladder; through fear that if he moved he might fall down a precipice, he remained where he fell for several hours until he could see his way home, and although faint from loss of blood, he managed to crawl home, and arrived at 3 o'clock the following morning.

"Assistant Surgeon M reports, that he visited him at 9 o'clock the same morning and found him in great suffering. There was a large irregular wound in the fold of the nates at right side, about one-and-a-half inch from the anus. Patient stated that he had been to stool and passed some fœces and bloody urine through the wound, causing much pain. Pulse 100° and small, and he seemed greatly prostrated and despondent. He was at once placed in a warm bath, and the parts affected well fomented and cleansed.

"He was again visited at 1 P. M., and complained of tension and pain in the gluteal and pubic regions. A No. 10 silver catheter was passed, and about 5 ozs. of bloody urine drawn off. He was again placed in a warm bath, and after half an hour an opiate was given; he was put to bed, rest enjoined, and tea diet ordered. At 6 P. M. he expressed himself very much easier; he had passed a quantity of urine through the wound; no pain complained of with the exception of a little tenderness in the hypogastric region. Pulse 88° and soft, skin moist, a hip-bath was ordered, in which he sat for half an hour, after which a spongio-piline epithem was applied between the folds of the nates, and a draught, containing Tr. hyosciamus, ordered at bed time.

"*17th May.*—Passed a very restless night, going frequently to stool, but passing little from the bowels; some urine came through the wound, no pain in abdomen or gluteal region. A catheter was introduced and a small quantity of bloody urine drawn off; the catheter retained in the bladder. His tongue is clean, pulse 88° and soft; says he feels very easy. To take Ext. opii. gr. 1 ter in die.

"*Vespere.*—Had about four hours of refreshing sleep to-day; skin acting freely; no fever, feels no pain.

"*18th May.*—Slept fairly; passed some urine, partly through the urethra and wound containing blood; some tenderness about the edges of the wound. Ordered the hip-bath thrice during the day, and to continue the opium pill.

"*Vespere.*—Passed some bloody urine during the day through the wound; complains of great itching of the meatus; is in no pain; tongue clean; pulse 86°. A large cataplasm of linseed meal applied to wound.—Cont. pil. opii. To drink linseed tea *ad libitum*. Rice and milk diet ordered.

"19*th May.*—Passed a sleepless night; urine passed through wound and urethra.—

"20*th May.*—Slept well last night; is very comfortable; spongio-piline epithem applied.

"21*st May.*—Edges of the wound looking healthy; bowels freely opened yesterday; no fæces passed through the wound, but some trickling of urine. To have opii. gr. 1 at bedtime.

"22*nd May.*—Going on well; the urine passed mostly by the urethra, and is always of a deep red colour; no irritation of the neck of the bladder. Tongue clean, appetite good. He takes rice and custard pudding with tea and toast as his diet.

"25*th May.*—Feels very comfortable; wound looking healthy; the urine now passes mostly by the urethra, is still bloody; bowels regular, is anxious for a little soup, which he is permitted to take to-day.—Omit medicine.

"2*nd June.*—Passed more urine than usual through the wound; he fancies the passage is stopped by clotted blood. A large silvecatheter passed and some bloody urine drawn off.—Cont. Spongior piline epithem.

"6*th June.*—Much improvement; wound looking healthy; the urine comes almost entirely through the urethra; appetite indifferent.—Habeat Infus Chirretta ℥ii. Omni Mane.

"1*st July.*—For the past month has been progressing most favourably; there does not as yet, however, seem much chance of the wound healing. His appetite and general health are good.

"11*th July.*—Still passes urine through the wound, and yesterday a great deal of blood came away, and a small piece of membrane covered with salts passed through the urethra, which somewhat alarmed him.

"12*th July.*—A silver catheter passed to-day and retained in the bladder.

"*13th July.*—Assistant Surgeon M made over charge of patient to me about 13th July. He then suffered from great scalding and pain during micturition; the urine was highly acid, and deposited uric acid when allowed to stand; the lining membrane of the urethra was thickened and congested; a catheter of medium size could be passed, but attended with pain, and several minor strictures encountered owing to the inflamed and thickened state of the membrane. Ordered Liq. Potas ♏. xx. ter in die and aq. hordei *ad libitum;* warm hip-baths and a tonic acid and glycerine injection for the urethra.

"*10th August.*—Rather better; his rest is not so much disturbed at night, and the pain during micturation is not so acute, but there is still considerable irritation of the bladder and urethra, and he passes a large quantity of mucus with the urine. The formation of little abscesses in the follicle of the urethra gives him pain and constricts the passage, so that, occasionally, there is difficulty in introducing a No. 5 gum-elastic catheter.

"Leeches were applied to the perineum a few days ago and gave some relief; he takes a hip-bath daily and injects the urethra with an acetate of lead wash. The Liq. Potass was omitted to-day as the acidity of the urine is corrected.

"*29th August.*—No improvement; the irritability of the bladder and urethra continues; a large quantity of mucus, and occasionally blood, accompanies the urine. As these symptoms might indicate stone, a silver catheter was introduced with difficulty, and search made for stone, but without success. Patient suffers very much at night from tenesmus and a desire to micturate.

"*Treatment.*—A gum-elastic catheter passed and through it warm water injected to wash out the bladder and the following injected. ℞ Nit argent gr. ii. acid nitric ♏ iv aqu: callid ʒ iii ♏ for lotion.

"To have Sol. Morphi ♏ xxv. in a draught at bed-time. Ext. Belladonna to be smeared over the perineum, and an opium suppository introduced.

"31*st August*.—The Nit: argent: injection has been repeated, and, under the use of the opiates, more sleep is procured at night. The tenesmus, however, is not completely removed, and he is obliged to get up at about intervals of one hour and-a-half to micturate, some urine still coming away by the fistula. With a view to relieving the inflamed state of the genito-urinary mucus membrane, the following mixture is ordered:

℞ Copaivæ ℥½.
Liq. Potass ʒiii.
Spt. Ether Nit ʒii.
Tr. Hyosciam ʒi½.
Aq Camphoræ aa ℥iv.
♏ *F. Mx.*—A table-spoonful thrice a day.

"2*nd December*.—The latter treatment was attended with the best effects; the irritability of the bladder subsided, and the mucus which accompanied the urine disappeared. The Nit: Argent: injection was used every third or fourth day for some weeks and then omitted; but patient still takes the copaiva mixture. When the sores in the urethra healed and he could bear the introduction of a catheter, it was ascertained that he had a permanent stricture at the membranous portion of the urethra; this was treated by gradual dilatation and would appear to be cured, as he can now introduce a No. 9 catheter with ease.

"Owing to the want of a proper speculum, no satisfactory examination of the fistula has been made, but even, if suitable instruments had been obtainable, the irritable state of the bladder, and his impaired health, would have rendered an operation for the cure of the fistula inadmissible.

"The fistula is still patent as urine flows through the anus, when he micturates in the standing posture. The wound at the side of the rectum would appear to be healed, and there is now only the direct opening from the bladder into the rectum behind the prostate. Patient has probably some enlargement of the middle lobe of the prostate, as the urine passes only by the urethra when he micturates lying on either side; but, as before-mentioned, some drains away by the anus when micturating in the upright position.

"*2nd December.*—Patient's health has improved very much, and for two or three months he has been able to do some duty; he is, however, still subject to occasional attacks of pain about the neck of the bladder and passes now and then small quantities of blood with the urine, indicating a congested state of the membrane at the base of the bladder."

(Sd.) R. B., M. D.,
*Staff Assistant Surgeon.*

On admission into the College Hospital he was apparently in fair general health, but he complained of an incessant desire to pass water with much pain at the neck of the bladder.

The long and tedious journey had fatigued him and irritated the parts.

He was ordered sedatives, demulcents and a mild aperient, as his bowels were confined.

After rest and quiet for a short time, I passed a full-sized catheter into the bladder and detected the presence of a calculus.

The recto-vesical fistula was still unhealed; there was a prominent thickening at the orifice of the fistula where it opened into the gut; the ischio-rectal wound had quite healed; the cicatrix showed how serious it had been. The urine was highly acid, sp. gr. 1018. A deposit of mucus, occasionally slightly mingled with blood; no other abnormal condition of urine. On the 7th January the lateral operation was performed, and a friable calculus removed which broke down completely under the forceps; the debris weighed about 140 grains. There was very little hæmorrhage and no difficulty in the operation which was performed in the usual way. From this date until the 15th February, when his friends removed him for change, he was not well; he had frequent feverish attacks and diarrhœa; on the 11th of January especially, he had a sharp attack of ague. This was followed on the 12th by pain in the right testicle and cord. On the 30th of January the right inguinal region was swelled and painful. On the 2nd of February an incision was made into the right inguinal canal and a deep-seated collection of pus evacuated. The lithotomy wound was perfectly healthy, and he was free from pain in the perineum and about the bladder. After the incision he was relieved, and appeared to be doing better, the lithotomy wound was rapidly healing; the urine still flowing by the fistula, as well as by the urethra and lithotomy wound. Feverish symptoms returned, and another deep-seated collection of pus about the cord was evacuated as before. On the 9th he was again better, and apparently slowly convalescing, when he went home for a change of air.

The treatment had been adapted to the symptoms. Quinine, as he had been much exposed to malaria on his journey. Astringents to check diarrhœa; opiates, when necessary, to give rest, and a nourishing diet with a moderate quantity of wine. Alkaline and diuretic remedies, when the urine was more acid and irritating than usual.

He returned to hospital on the 17th February; having become much worse. He had had severe rigors and fever; and when re-admitted was very much prostrated. His voice was low and depressed, pulse feeble and rapid, respiration gasping and hurried. Stimulants and sinapisms were ordered; quinine with hot brandy and water was given frequently.

18*th February.*—The Hospital record says:

"Axillary Temperature 105°; pulse extremely feeble; hiccup; extremities cold. He has vomited some dark coloured fluid; passed some turbid urine; motions loose and dark coloured."

The breathing became more hurried and gasping; intense cardiac apnœa preceded death, which occurred on the 18th February at 2¼ A. M.

# ON THE PYÆMIA OF OSTEO-MYELITIS.

I HAVE recently met with a Work on Pyæmia, or Suppurative Fever, by Dr. P. M. Braidwood. The Treatise is meant to be an exhaustive one, and its merits have been recognized by the Royal College of Surgeons of England, who have conferred on its talented author the Astley Cooper Prize for 1868.

As the work of a young man, whose experience is as yet necessarily limited, it is most creditable and full of promise. I have no intention of reviewing the book, but have merely to notice certain passages, in which, referring to my views on the subject of osteo-myelitis, I think he has imperfectly represented what I have said. Dr. Braidwood, in his historical review of the subject of pyæmia, refers to the opinions of those who have recorded any since the days of Hippocrates, but he has not always, I think, succeeded in giving their real point.

For example, he disposes of Dr. Chevers by saying, that "Chevers lays great stress on previous abdominal complications in pre-disposing to pyæmia." Is this brief sentence to be taken as representing a summary of the views and opinions of one who, upwards of twenty-five years ago, threw more light on the causes of death after surgical operations than has been shed on the subject by any individual writer since, and who laid the foundation of a branch of surgical pathology that has not been surpassed in interest or importance? Of Sir J. Simpson, who by the way takes freely from Chevers all that he has to say, as expressive of his contribution to our knowledge of pyæmia, is—"Sir J. Simpson objected to the term pyæmia, and prefers the name 'surgical fever.' This state of the surgical patient he considers to be generically, if not, specifically, the same as puerperal fever in the child-bed mother. He further proves the analogy between those two diseases, as regards their anatomical conditions, pathological lessons, symptoms and progress; neither of them, he says, can be excited artificially by the common causes of inflammation, but they are developed by specific causes," and allied to them both is erysipelas. Both he ascribes to a vitiated or diseased condition of the general circulating fluid. "This doctrine," he remarks, "enables us to perceive how in one set of cases, or one epidemic of puerperal fever, the febrile effect or element may be more marked than the inflammatory, and how in others, and those generally the most amenable to treatment, the inflammatory effect or element may be more marked or prominent than the febrile."

Of myself, he says, Dr. Fayrer, from his observations concludes that "osteo-myelitis, an acute and diffuse inflammation, a sort of erysipelatous form, is a very frequent source of pyæmia"; and again, "of late, the origin of suppurative fever from osteo-myelitis has been promulgated by Professor Fayrer of Calcutta. But in support of his theory, a very small amount of evidence is producible." Again, quoting my remarks on amputation in osteo-myelitis, he says: "Looking at Professor Fayrer's data, which are our guides to amputation, they are most unreliable," and so on. Now, I think, that Dr. Braidwood must have made himself very imperfectly acquainted with what I have written on this subject, and with the data, which he considers so unreliable, or he could hardly have expressed himself so decidedly. He evidently admits the existence of such a pathological condition as osteo-myelitis, and has described some cases which were clearly of this nature. He recognizes its dangers, but he appears to regard it not as the cause, but the consequence, of pyæmia, placing it in the same category with other pathological changes significant of that morbid state. It is here I join issue with him by stating that the pyæmia, blood-poisoning, septicæmia, surgical fever, call it which you will, is frequently due to, and caused by suppuration, occurring in the cancellated texture of bone, after injuries, wounds or surgical operations, when, in all other respects, the patient is doing well. Osteo-myelitis, I assert, is the precursor and cause, and not the result or sequence of the dangerous pyæmic symptoms, which, if not early recognized and promptly dealt with, will cause death. It is not to be regarded as merely one of a series of indications of blood-poisoning, but as an original condition of disease attended with the greatest danger to life, and one which, if observed early and removed by ablation of the affected bone, may be followed by recovery. I could give no better illustration of this than that of the case of the Mahomedan, Sheikh Ashgur, who, when suffering from the most aggravated pyæmic symptoms from osteo-myelitis of the femur, rapidly recovered when the affected bone was removed by amputation at the hip (*vide* Clinical Surgery in India, page 609).

Of course, if this interference be not exercised in time, the pyæmic condition will rapidly advance beyond hope of recovery, and amputation will then be too late to save life. It is the importance of knowing and early recognizing this, that I have endeavoured to demonstrate in what I have written. I have more than once had the gratification of seeing a successful issue when amputation was early resorted to in cases where, if the osteo-myelitis had been merely expressive of a general pyæmic condition, the operation was not likely to have been of any service.

I am perfectly aware that diffused suppuration of a bone does not take place generally, or as a natural consequence of wound or injury; and when it does is, no doubt, expressive of some defect of either the patient or of the conditions in which he is placed, or both. But I regard this local expression of an imperfect condition of the health as very different from that which is generally understood by the vague term pyæmia, one expressive of general blood poisoning, and which presents itself in its most dangerous form, if the local mischief in the bone be not removed. This untoward result is fortunately not of very general occurrence, but it is so liable to occur occasionally, that due stress should be laid on its importance. It is, no doubt, to be classed among the large group of evil results which are, to a great extent, caused by what has been recently called "Hospitalism," and it sometimes appears almost in an epidemic form; but it may and does occur sporadically, under the most favorable conditions, and I have more than once met with it in private houses and in healthy subjects, when timely interference by amputation has preserved life that was rapidly succumbing under the most marked pyæmic symptoms. At the time I wrote, my attention was directed, and I gave much thought and study to the subject, as it was present in almost an epidemic form in the Medical College Hospital, and both I and my colleagues found that it frequently occurred after the simplest operation where bone was interfered with. Such also has been to a certain extent the experience of M. Jules Roux, who advocated, as I have done, amputation through a joint to avoid, in the first place, leaving any of the bone already affected, and in the second, to obviate the danger of what has been called "traumatism" of the next bone.

During the last two years, the opportunities of continuing my observations on osteo-myelitis have, I am happy to say, considerably diminished, for it has been comparatively absent from the wards, and we have not at present the same dread of mischief in the bones that we used to have; but pyæmia from other sources still continues, and the pathological changes, expressive of that form of blood poisoning, are not less frequently presented for study here, than they are in other hospitals. As to the cause of these changes, I do not now offer any opinion further than that they have followed hygienic improvements in the hospital and its surroundings.

I must, therefore, repeat my opinion that, whilst fully recognizing many other sources of blood poisoning, and admitting the probability of the cancellated tissue of bones, sharing with other tissues in morbid changes the consequence of pyæmia; I regard osteo-myelitis as a distinct, original and dangerous form of disease liable to occur under peculiar circumstances, after wounds, injuries and operations, nay even idiopathically, and productive of the most deadly form of surgical fever; resulting in disintegration or local death with a low form of so-called inflammation in the viscera, cavities and tissues generally of the body; but that, if recognized early, and the diseased bone removed, recovery may, in favourable cases, occur. The symptomatology and treatment of osteo-myelitis I have already fully discussed,—*vide* Clinical Surgery in India. I see no reason to alter the views there expressed, nor have I anything to add on this subject.

As Dr. Braidwood has criticised my opinions on this cause of blood poisoning, and has gone deeply into the pathology of pyæmic changes, I am somewhat surprised that he has not commented on what I have said respecting the so-called abscesses in the lungs, liver and other viscera. Of these, I have expressed my conviction that they are not abscesses at all, but that they are local deaths, or gangrene of portions of tissue caused by toxæmia or embolism. That collections of pus, but more frequently of puriform matter, are found in these situations, I freely admit, but these are the consequences of the presence of the quasi-foreign body; the dead tissue, around which, when life is prolonged, suppuration is set up, as when a thorn is imbedded in the flesh, or as in the case of the core of a boil; for the purpose of extrusion of the foreign body or dead tissue from connection with the surrounding living tissue. I would adduce in proof of this the frequent presence of one of these so-called "abscesses" at the margin of the lung or liver, where a portion, frequently of an irregularly triangular form, is dead, broken down and fœtid, surrounded with a layer of condensed and congested tissue, from which, by a process of ulcerative and liquefactive degeneration, the dead is separated from the living part. In some cases of pyæmia, the local, has so early preceded somatic death, that collections of purulent or puriform fluid have had time to take place, but death often overtakes the subject of the disease before any such change can occur. It can hardly, I think, be correct to speak of these, as Dr. Braidwood describes them, as abscesses, or, if they be so called, it would be more correct to describe the true nature and origin of the purulent collections. I do not include in this category the abscesses which are frequently found in other situations in the areolar tissue, whether internal or external, and which are, no doubt, due to a condition which is frequently idiopathic, and not in any way due to either wound or injury. The form of pyæmia called idiopathic, is by no means uncommon in Calcutta.

There is also another result of blood poisoning, on which I have frequently remarked, in former communications to the Indian Annals and other periodicals, the rapid formation of firm fibrinous coagula in the right side of the heart, and the consequent apnœa, which, in many cases, proves rapidly fatal. I do not now offer any opinion on the cause or nature of the condition of the blood, which, occasionally in surgical patients, as well as those suffering from exhaustive diseases, determines the formation of these coagula, which either destroy life, or, having endangered it, produce subsequent evidence of thrombosis and embolism. I am quite aware that it has been advanced that these coagula form either during dissolution, or in the advanced stage of diseases, (such as croup diptheria, cholera,) which is the precursor of death; or it may be as one of the latest vital changes in pyæmia itself; but such is not, I am satisfied, always the case. Over and over again I have seen patients who were not in this condition, and for whom there was every reason to prognosticate recovery, with a healthy, or, at all events not unhealthy, looking granulating surface, after a surgical operation or wound, overwhelmed suddenly as it were, and carried off in a comparatively short space of time. A remarkable example of it occurred only the other day, in which a young man, who had sustained an injury, causing gangrene of a portion of integument, was suddenly attacked with all the symptoms of cardiac and pulmonary obstruction, and sank in a complete state of cardiac apnœa within a few hours. The post-mortem revealed what had been diagnosed during life, plugging of the right cavities of the heart and of the pulmonary artery, with firm adherent fibrinous coagula. I have already recorded my views on his subject in the Medical Gazette, page 281, and Indian Annals, page 319, and only now revert to it as a subject of great interest, and one for the thorough elucidation of which further observation is desirable.

I have selected from the Medical College Pathological Museum some illustrations of the pathological conditions resulting from pyæmia due to various causes, though chiefly from osteo-myelitis, and I think that a reference to these would convince Dr. Braidwood that the data on which to form an opinion are not wanting here.

## *Cases of Pyæmia and Osteo-Myelitis.*

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—19th September 1864; *No.* 42; *Description.*—Case of B.—Lithotomy performed 3rd September 1864. Died from pyæmia 19th September 1864. Liver, lungs, spleen and bladder preserved.

*Liver.*—Right side of right lobe at its anterior and right angle a mass of so-called abscesses and in a state of gangrene. All the so-called abscesses communicating with one another, and about the size of walnuts.

*Spleen.*—Ordinary size, congested, contains two or three so-called abscesses, the size of grains of small shot.

*Left Lung.*—Lower lobe somewhat congested, but still crepitant, upper lobe healthy.

*Right Lung.*—Upper lobe crepitant in front, congested behind; the portion at the upper and posterior end of the fissure in a state of incipient grey hepatization.

Lower lobe altogether in a state of grey hepatization; when cut into the fluid which escapes is full of cells about half the size of blood corpuscles.

*Bladder.*—Cavity small, walls greatly thickened, mucous membrane congested above, dark green below, apparently almost gangrenous, also lower end of rectum.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—10th November 1864; *No.* 57; *Description.*—CASE OF H. S.—Large osteo-sarcoma of right ulna (upper end involving olecranon) removed by Dr. Fayrer, 10th November 1864; the bony shell of the tumour is deficient anteriorly, and so thin behind that it has been cut through in two or three places. Within is a cavity; the walls of the bony shell are lined with a pultaceous mass.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—20th November 1864; *No.* 63; *Description.*—Ulna radius and wrist joint amputated for osteo-myelitis 20th November 1864, through middle of humerus. The space occupied by the tumour, and excised portion of ulna, was full of pus and surrounded by infiltrated areolar tissue. A suppurating cavity led to the wrist joint, into which it opened laying bare the end of the radius for about an inch. On the (anterior) aspect of the fore-arm was a large cavity corresponding to that formed by the removal of the tumour. Separated from it by the interosseous ligument and bounded in front by the entire mass of muscles. It contained ℥iii or iv. of fœtid coffee-coloured pus full of flakes.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—4th December 1864; *No.* 63A; *Description.*—Humerus of the same patient, who died on 4th December of pyæmia, showing osteo-myelitis, a small portion of lung sent with it, was infiltrated with pus, besides containing numerous so-called abscesses varying from the size of a pea to that of a pin's head.

*No.* 331A; *Description.*—Heart of a Hindoo, æt 30 years, who died of pyæmia 18 days after the right femoral had been tied in Scarpas triangle for elephantiasis of the lower third of the leg.

The femoral artery and vein and the iliac veins were healthy; a minute abscess was found in each kidney. Both lungs were full of patches of dead tissue, surrounded by zones of red hepatization. The preparation shows a large anti-mortem coagulum occupying the right ventricle, and extending into the pulmonary artery and into its main branches. The clot has taken the cast of three pouches behind the sigmoid valves. The left ventricle and aorta are occupied by a smaller coagulum.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—15th March; *No.* 105; *Description.*—Osteo-myelitis of tibia after Symes' operation performed for laceration of the foot on 27th February.

Secondary amputation through thigh, 15th March. Section of tibia showing osteo-myelitis. *No.* 108; *Description.*—Lungs and heart of H. D., who died 17th March 1865. The secondary amputation being too late to prevent the occurrence of pyæmia. Both sides of heart filled with fibrinous clots extending from auricle to artery. The clot in the left auricle is very large. The clot in the left ventricle is small and rope-like, and terminates in the aorta about an inch above the sigmoid valves by a free extremity. The venæ-cavæ are occupied by two clots about the size of a hazel nut. Right lung full of patches of dead tissue, (the so-called pyæmic abscesses,) intensely congested posteriorly, and its posterior surface smeared with greenish lymph. Sac of right pleura contained about ℥i. of purulent serum.

*Liver.*—Right lobe full of large patches of the so-called pyæmic suppuration.

Right femoral vein of the same case (H. D.) from the stump to about two inches above Pouparts ligument contained an ordinary red *post-mortem* clot from the stump to near the junction of the profunda vein, where it became fibrinous. This portion, microscopically examined, showed a quantity of granules, some oil drops, and some cells looking like altered blood corpuscles. At the point of junction of the profunda vein there was a small quantity of pus discharged from the femoral vein, the lining membrane of which was roughened.

Branch of portal vein about half the size of a No. 1 catheter close to most disorganised part of liver found occluded by coagulum.

*Donor's Name*—Assistant Surgeon R. Carter; *Date of Receipt*—19th March; *No.* 113; *Description.*—Right knee-joint of K. of the Bengal Artillery, who was shot on the inner condyle of the femur, in the attack of Dewangiri in Bhootan, and died of pyæmia in Calcutta. The ball (an irregular leaden match-lock ball, preserved with the specimen,) entered the cavity of the joint on the inside and lodged in the inner condyle whence it was removed after the patient reached Calcutta. The aperture in the skin preserved; the bone round the ball is carious and infiltrated with pus. The interior of the joint was quite disorganised by inflammation and contained pus; the cartilage covering the outer condyle and the back of the patella has been partly absorbed exposing the bone. The femur is almost completely detached from the soft parts by the formation of extensive abscesses. The veins of the thigh were healthy. A large pyæmic abscess had formed under the deltoid and opened into the right shoulder-joint, the cartilages of which were eroded. There was a large patch of dead tissue in one lung, and a similar one in each kidney. Pelves of kidney full of pus. Ureters enormously dilated. The heart and other viscera were healthy.

*Donor's Name*—Dr. Partridge; *Date of Receipt*—6th June 1865; *No.* 146; *Description.*—Fractures of right femur, tibia and fibula in a native sustained in the great Cyclone of 5th October 1864. The ends of the fibula over-ride slightly, and are united by their sides, which come into contact. The fragments of the tibia are everywhere a quarter of an inch apart, but are united by a large mass of callus formed on the outer side of the bone nearly filling the interosseous space. The gradual "modelling" of fractured bones is well illustrated. The separated ends of the tibia have been greatly rounded off; the medullary canal is open (after eight months) in both bones.

The femur has been broken across nearly transversely about the middle, and a second fracture, running downwards from the first, through the lower fragments separated a piece of bone on its outer side. This has re-united to the lower fragment, but no union between the two main fragments ever took place; on the contrary, their ends were well rounded. Dr. Partridge inserted two ivory pegs (which still remain) in the upper fragment; this led to the formation of some callus at the back of the upper and in front of the lower ragment, but the patient died of pyæmia, 6th January 1865.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—14th September; *No.* 221; *Description*—G., aged 12 years, a native lad, admitted in Dr. Fayrer's Ward in August, with a lacerated wound about an inch above the patella. The wound was about quarter inch long, ran transversely across the thigh. From the time of admission, pus mixed with synovia-like fluid discharged from the wound. Excision of knee-joint performed by Dr. Fayrer. The patient died on 13th September of pyæmia. Both lungs contained so-called pyæmic abscesses, varying from a quarter to two-thirds of an inch in diameter. Heart healthy; right ventricle contained a fibrinous clot which extended through the auricle to the venæ-cavæ. Nothing remarkable in the microscopic character of liver or kidney. Femoral, saphena, iliac veins of injured side healthy; no pus or coagula in them.

Small patches of osteo-myelitis in the tibia, cancellated tissue soaked with pus.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—9th November 1865; *No.* 239; *Description*—Case of I. H.—Admitted 2nd October 1865, with an injury of the left-knee, followed by suppuration; amputation performed on 25th October. There were collections of pus in and above and below the joint. The synovial membrane round the patella thickened, pulpy and of a deep crimson colour. Incipient ulceration of the cartilages of the femur; the cartilage on the inner side of the tibia is quite detached, and can be peeled off from the bone, semi-lunar fibro-cartilages had almost disappeared, the crucial ligaments were softened.

Femur removed the 9th November 1865 at hip; osteo-myelitis having set in. The bone section shows extensive osteo-myelitis, and purulent deposits extending to cancellated tissue of head of bone. The patient died on 13th November 1865, 90 hours after the last amputation.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—19th January 1866; *No.* 276; *Description.*—Portion of a growth removed from the left upper jaw of a native, aged 30 years. The tumour was of a year-and-a-half duration. Removed this morning by Dr. Fayrer. There is a growth of two months' duration on the other side, involving the whole of the upper jaw, "consists of oval cells nucleated nuclei and fibro and fibro-plastic matter." The patient died on 22nd January of pyæmia with left lung entirely consolidated and passing into the suppurative stage. Microscopical examination same as above.

*Donor's Name*—Dr. Ewart; *Date of Receipt*—13th February 1866; *No.* 292; *Description.*—A portion of the upper lobe of the left lung of a native, who died from pyæmia after secondary amputation of the fore-arm in consequence of sloughing, &c., after amputation of thumb; section showing a cluster or two of miliary tubercles and a patch of sloughing lung from pyæmia.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—13th February 1866; *No.* 294; *Description.*—Remains of radius and ulna of right side in a patient who died from pyæmia, under Dr. Fayrer, after secondary amputation of fore-arm, following amputation of thumb necrosis of both bones. No osteo-myelitis. Lung studded with pyæmic patches. Veins of arm and fore-arm, connected with the radial and ulnar artery, were filled with pus up to their junction with the axillary, where there was slight recent adherent coagulum.

Kidneys of the above, who died from pyæmia after a secondary amputation of the fore-arm in consequence of sloughing, &c., after amputation of thumb. "Very fatty under microscope, spheroidal cells very scanty, nucleus indistinct and filled with dark granular fatty matter, denuded interval also studded with fat granules."

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—13th March 1866; *No.* 325; *Description.*—The stump of right fore-arm amputated above the elbow-joint on account of osteo-myelitis. Section of the ulna and radius show destruction of medullary matter; necrosis of shaft and suppuration, softening, and degeneration of the cancellated structure of the heads of these bones; humerus also divided, on section healthy.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—4th April 1866; *No.* 342; *Description.*—Arm of S. amputated at the shoulder-joint. This joint showing osteo-myelitis of humerus. This man recovered.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—5th May 1866; *No.* 360; *Description.*—The parts of the upper arm of F. R., aged 20 years, admitted in Dr. Fayrer's Ward on 20th April 1866, with a gun shot wound of the middle third of the upper arm. The soft parts much shattered, bones comminuted. Gangrenous ulceration and osteo-myelitis supervened after the extraction of the bullet. Amputation at the shoulder-joint, 2nd May 1866. Specimen now exposes the injured parts and a section of the humerus. The main bulk of the humerus above the injury much congested, but free from inflammatory exudation or pus. An inch above the fracture diseased.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—18th May 1866; *No.* 369; *Description.*—Lungs of No. 360, in which there are numbers of pyæmic patches in the inferior lobes. "These in the centre consisted of soft yellow puriform-looking material, which, on examination under the microscope, brought to view a good many fat globules and granular matter, and very few pus globules.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—12th June 1866; *No.* 380; *Description.*—The humerus of a patient, J. E. M., aged 12 years, admitted under the care of Dr. Fayrer, 3rd July 1864, died 10th June 1866. Excision of elbow-joint performed 9th April. Great deal of suppuration beneath the pectoralis-major. Shaft detached from the head. On section cancellated and medullary structure of shaft and head of humerus destroyed by osteo-myelitis. It is owing to the destruction of the parts that the head has become separated from shaft at the epiphysis.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—12th June 1866; *No.* 381; *Description.*—Lung of the above (No. 380) (right) covered with lymph, the result of pleurisy and empyema following re-section of elbow-joint.

*Donor's Name*—Dr. H. Baillie; *Date of Receipt*—3rd July 1866; *No.* 394; *Description.*—Osteo-myelitis of the humerus after amputation from a compound fracture of the fore-arm, with a wound opening the elbow-joint. The medulla is almost altogether destroyed, and a portion of the cancellated tissue in the head of the bone, larger than a split pea, is dead and beginning to break down. The cancellated tissue was infiltrated with pus, of which the cavity of the shoulder joint was also full. The articular cartilage along the lower edge of the head of the bone is partially absorbed.

Secondary amputation through the shoulder-joint was performed 12 days after the receipt of the injury and primary amputation, but the patient died within three days. The lungs were full of "pyæmic patches."

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—4th August 1866; *No.* 448; *Description.*—The femur of a patient in whom amputation of the leg at knee-joint performed on 26th August, and in whom death supervened on 3rd of September 1866. Patient suffering from suppurative disease, which had formed communication with the knee-joint.

A section was made of the whole length of the femur. The lower two-thirds were tolerably healthy. The cancellated structure of the upper third, inclusive of that of neck and head of the bone and medullary cavity, were blackened and discoloured, and giving off a highly offensive odour from advancing osteo-myelitis There was also puriform matter.

*Donor's Name*—Dr. Baillie; *Date of Receipt*—12th October 1866; *No.* 482; *Description.*—Femur of a patient, under Dr. Baillie, showing osteo-myelitis in the whole length of the bone after amputation at the knee joint. Flaps sloughed, hæmorrhage took place from the popliteal. The popliteal tied successfully. Bleeding occurred from some minute branches of the popliteal, and the patient died at last.

*Donor's Name*—Dr. Baillie; *Date of Receipt*—13th October 1866; *No.* 484; *Description.*—The lower half of the femur of the patient mentioned in No. 482. (The patient had compound comminuted fracture of tibia, and fibula and knee-joint). Section of femur showing osteo-myelitis at the upper part of the section. Amputation was performed in this case at the knee-joint, which was found full of blood, though the condyles and cartilages were healthy.

*Donor's Name*—Dr. Baillie; *Date of Receipt*—22nd November 1866; *No.* 508; *Description.*—Upper third of the humerus of the patient named B. N., aged 30 years, a farmer; states that, about a year ago, while employed in cutting grass, he suddenly jerked his right arm and immediately felt a deep-seated pain in the elbow-joint, which continued for several days, and terminated in a small painful tumour upon the inner side of the joint. The tumour gradually increased, soon followed by fever; and as it was imagined that suppuration had occurred, incisions were made and purulent matter discharged in small quantity. The tumour, however, gradually increased in size, the incisions have ulcerated, and other ulcers have formed upon the surface. At present the tumour has the shape of two coins, united at their basis, the surface is irregular, and it involves the lower half of the upper arm and upper half of the fore-arm. It is soft but perfectly immovable. The ulcers were all superficial, but grey-looking, and of various sizes. The fore-arm is partially flexed, the elbow-joint anchylorsed. Flexion of the fore-arm partially impeded, but extension entirely so. Had lancinating pain in the tumour. No fever for past 15 days; pulse 102, weak. Bowels regular, appetite indifferent. The tumour was examined by the microscope. It is cerebreform cancer.

*No.* 507.—Cancer, oval cells with nuclei. The bone is diseased. The medullary canal is full of soft grey coloured substance. The disease has extended little higher than the surgical neck. Under microscope presents pus cells, blood corpuscles, with fatty matter.

*Donor's Name*—Dr. Partridge; *Date of Receipt*—2nd January 1867; *No.* 546; *Description.*—Left knee-joint, liver and left lung of a patient admitted with compound fracture of left leg and lower jaw, who died of pyæmia.

A.—Synovial membrane of the knee-joint at each side of the patella and above the condyles of the femur is thickened and covered in places with a deposit of lymph.

B.—Liver (small with a long thin left lobe). Contains in the upper surface of the right lobe a cavity nearly the size of a walnut, filled with broken down liver tissue, and a much smaller one of the same kind in the under surface of the left lobe.

C.—Lung, intense congestion of lower lobe; upper lobe hepatised and containing several solid nodules, which would probably have ultimately broken down into the so-called pyæmic abscesses.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—16th March 1867; *No.* 611; *Description.*—Both fore-arm and lungs of E. D., who died on 16th March of osteo-myelitis after amputation.

A.—The bone of the right thigh amputated on 7th March 1866; shows the rounding of the divided edges of the bone and the general atrophy of the whole bone. The opening of the medullary canal is covered by a firm fibrous membrane derived from the periosteum.

B.—The upper portion of the left femur bisected ("amputation performed on 18th February"). The periosteum has peeled off the upper part of the shaft; near the divided end of the bone it is nearly one-third of an inch thick. This thickened portion of the periosteum does not extend to the cut surface of the bone, but terminates by a sharp free margin, which is quarter of an inch from the cut surface at its nearest, and nearly one-eighth of an inch from it at its furthest points.

The irregularly-shaped portion of bone thus left between the free edge of the periosteum, and the line of division of the bone, is evidently dead. In the recent state its dead white colour could be easily distinguished from the somewhat grayish hue of the living bone, as seen on the face of the bisected surface. At one point close to the edge of the thickened periosteum a furrow is beginning to form between the living and the dead bone. The medulla protrudes slightly beyond the cut end of the bone. It is infiltrated throughout with pus, as is also the cancellated tissue. Near the lesser trochanter the whole thickness of the medulla has come away, with one-half of the bone, showing that the periosteum is here detached from the bone. The whole medulla is full of cavities. There is incipient erosion of the cartilage on the head of femur at its upper edge.

The heart contained a remarkably firm clot, attached below round the "moderator band," and extending up into the pulmonary artery and thence into its branches as far as they were traced. Both lungs contained "pyæmic patches," and the lower lobe of left lung was solidified.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—3rd April 1867; *No.* 622; *Description.*—Stump of A., admitted with moist gangrene of leg and foot, after a wound in the heel. Amputation performed; died of pyæmia 2nd April 1867.

A good specimen of osteo-myelitis, stump showing the sloughing state of the soft parts and characteristic protrusion of the medulla (especially that of the tibia) beyond the cut end of the bones.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—6th June 1867; *No.* 659; *Description.*—The humerus of a patient named S. aged 40 years, admitted on the 6th May 1867 in Dr. Fayrer's Ward, with a lacerated wound on the inner aspect of the left elbow-joint. Joint opened from extensive suppuration. Amputation performed on the 25th May; died 5th June 1867 from pyæmia.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—4th July 1867; *No.* 679; *Description.*—Thigh of (*No.* 677, P., aged 21 years, admitted 24th June 1867, with an incised wound in the right knee-joint, inflicted by himself in cutting grass. Suppuration set in the joint and among the muscles of both calf and thigh. Amputation between middle and lower thirds of thigh. Periosteum peeled off the bone. Large abscesses in soft parts laid open. The patella has been thrown down to show the inside of the joint.. The thickened pulpy state of the synovial membrane is well seen; the inner condyle of the femur and the corresponding portion of the tibia have lost a large portion of their cartilage of incrustation, and the external condyle has begun to be denuded also); amputated 4th July 1867, at the hip-joint;—osteo-myelitis having set in the femur. The limb has been laid open from inner angle of the first amputation up to the line of the second so as to show the periosteum completely detached from the bone, and the remaining connected with the soft parts of the upper end of the incision through the periosteum. There is a layer of blood effused between it and the bone. The medulla is seen protruding from cut end of the femur.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—4th July 1867; *No.* 679; *Description.*—Patient died on 5th July 1867; lungs were emphysematous and ex-sanguine, and there was an extensive anti-mortem coagulum found in the right side of the heart and pulmonary artery.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—10th September 1868; *No.* 917; *Description.*—A.—Liver showing a large pyæmic abscess at the under surface of the left lobe, from a patient named D. C., aged 30 years, admitted on 4th July 1868, for inguinal-hernia of the right side; died on 9th September.

B.—Pelvis of the same showing changes in the wall of the inguinal canal of the right side, where operation for radical cure was performed by Dr. Fayrer; the opening through the canal will admit the insertion of a finger.

*Donor's Name*—Dr. Partridge; *Date of Receipt*—29th November 1868; *No.* 956;—Liver of B., aged 46 years, died of pyæmia on the 28th, after perineal section operation performed on 4th November 1868.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—3rd February 1869; *No.* 987; *Description.*—Specimens showing several pyæmic patches in the lungs; heart full of anti-mortem clots; right lobe of liver occupied by large so-called abscesses and several small ones, and congestion of spleen; from a native named S. T., aged 22 years, admitted on 31st December 1868, with compound fracture of right tibia and fibula; amputated on 20th January 1869, died of pyæmia on 2nd February 1869.

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—18th February 1869; *No.* 994; *Description.*—Portion of liver showing small pyæmic patches. Rectum and bladder showing recto-vesical fistula from an Englishman named W. H., aged 44 years, admitted 16th December 1868, with vesical calculus and fistula. Lateral lithotomy performed. (C. 9797).

" Section shows repair after operation of lithotomy. Of bladder mucous membrane ecchymosed."

*Donor's Name*—Dr. Fayrer; *Date of Receipt*—12th September 1863; *No.* 1190;—Case of osteo-myelitis. Section of the head of the left scapula from a European, who died of pyæmia after secondary amputation at shoulder-joint. The section across the coracoid process and joint show the state of the cancellated structure after low inflammation and suppuration of bone causing pyæmia.

# SIXTEENTH REPORT

OF THE

# EUROPEAN
# FEMALE ORPHAN ASYLUM;

TO WHICH IS ADDED

## AN APPENDIX,

CONTAINING

AN ACCOUNT OF THE PRESENT STATE OF
THE SCHOOL,
AND A LIST OF SUBSCRIBERS AND BENEFACTORS.

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CALCUTTA:
PRINTED AT THE FREE SCHOOL PRESS.
1862.

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# SIXTEENTH REPORT

OF THE

# EUROPEAN FEMALE ORPHAN ASYLUM.

It is now nearly five years since the Lady Managers of this Institution issued their last Report to the Public. During that long period however but few important changes have taken place, and there is little to record beyond the gratifying fact that the work of the Institution has all along continued, by God's blessing, to be carried on with the same uniform success and good results that had accompanied it in former years. The Lady Managers have only therefore to lay before the Public a summary of the principal events that have occurred since the date of their last report, with statements of the receipts and disbursements, and of the admissions and removals of Orphans. This they now proceed to do.

In May 1857, Mrs. Chamberlain, who was the Head Mistress at the time the last Report was issued, left the Asylum, and in July of the same year Miss Ledger arrived from England to fill her place. She proved an excellent, kind, and judicious Superintendent during the time she remained in the Institution, and the Lady Managers parted with her with great regret when, early in 1859, serious illness compelled her to relinquish her post and proceed home.

Miss Hamilton and Miss Hubert arrived from England in December 1857, to fill the respective positions of work-Mistress and Matron in the Institution. The former was unfortunately never able to enter upon her duties, having shewn symptoms of mental derangment during the voyage out, and she was therefore sent back to England as soon as arrangements could be made for her passage.

In February 1858, the Institution sustained a severe loss in the death of Mrs. Ellerton, its oldest friend, and greatest benefactress. A handsome tablet was afterwards erected to her memory in the School Chapel by subscription among the married and grown up wards who had left the Institution.

Whooping cough broke out among the girls in March 1858, and unhappily one death occurred. It was found necessary to send some of the worst cases to the Sandheads, and subsequently all the girls were removed to Agurpara for 6 weeks to recruit their strength.

In this year The Reverend J. Richards, who had been long and zealously officiating as Chaplain to the Institution, went home, and the Reverend Mr. Burney kindly undertook the duties until Mr. Richards' return in February 1860, when he again resumed them. The best thanks of the Lady Managers are due to both these Gentlemen for their kind and unwearied efforts for the spiritual good of the children.

In May 1859, several cases of measles occurred, some of which were very severe, but happily none proved fatal.

After four years most kind and constant attendance upon the wards Dr. A. Macrae, in July 1859, resigned the Medical charge of the Institution. Dr. Fayrer very kindly consented to fill his place, and still continues to give his valuable services to the Institution gratuitously.

In May 1859, Mrs. J. H. Fergusson honorary Secretary of the Institution, went home for the benefit of her health, and was succeeded by Mrs. John Deffell, who continued to act till her own departure for England in February 1861. Mrs. Fergusson had in the mean time returned to this country, and resumed the duties of Secretary when Mrs. Deffell left. About the same date Mrs. Goodeve kindly relieved Mrs. Braddon of the Treasurership on her departure for England.

In consequence of the heavy calls made upon the funds of the Institution in the years 1857, 1858, and 1859, for the repairs of the Asylum, and for the expenses connected with procuring Mistresses from England, and sending Miss Hamilton home, the Treasurer was compelled in December 1859, to sell out Government Paper to the extent of Co.'s Rs. 2000, and unfortunatly at considerable discount.

In January 1860, Mrs. McCannah was appointed work-Mistress in succession to one or two others who had remained but a short time, and she still continues to fill the situation to the satisfaction of the Lady Managers.

Several appointments of Superintendents of the Asylum took place temporarily in the interval beween Miss Ledger's departure in 1859, and the arrival of Miss Dawson from England in February 1860. Miss Dawson immediately on assuming charge of the orphans proceeded to organize a better system of discipline and good order among them which the Lady Managers have found to be of the greatest benefit to the Institution.

In August of this year the Treasurer received, through Mr. M. Wylie, a donation of Rs. 2500 from the Glasgow Relief Fund.

Miss Hubert, the Matron, having fulfilled her engagement for three years, left the Asylum to be married in

November 1860, and was succeeded by Mrs. Linsell the present Matron.

Miss Dawson, having also engaged herself to be married, intimated in October to the Lady Managers her desire to leave before the expiration of her engagment, and they were therefore under the necessity of procuring another Superintendent from England. Through the kind assistance of Mrs. General Forbes they succeeded in engaging Miss Roach who arrived in February 1861, and immediately received over charge of the children from Miss Dawson. The Lady Managers think it but right to state that Miss Dawson, having failed to complete her engagement, forfeited, and duly paid, the amount of her passage money.

In consequence of the lamented deaths of the Bishop of Madras, The Reverend H. Thomas, and The Hon'ble Mr. Thomason, three new Trustees were appointed in 1861. The Gentlemen who kindly undertook the office were, The Venerable Archdeacon Pratt, E. Lushington Esq. and R. Thompson Esq.

It is with deep sorrow that the Lady Managers have to record the death of Miss Roach a few months only after her arrival in this country. She died of acute Dysentery after a week's illness. During the short time she had been in the Institution her gentle, amiable manners had endeared her to those around her, and her death was an occasion of mournful regret to all connected with the Institution. For two months after this sad event, Mrs. McCannah and Mrs. Linsell managed the daily routine of the Asylum between them in the most creditable and satisfactory manner, while the girls themselves exhibited much excellent feeling, and greatly contributed by their consistent good conduct to render the task of carrying on the Institution without a Superintendent comparatively an easy one.

In November 1861, The Lady Managers were so fortunate as to meet with a lady in this country, Mrs. Grant, who took charge of the Children, and still continues the Superintendence of the Institution.

About this time it having become necessary that the buildings should again be thoroughly repaired, the Lady Managers had to look out for some place where the children could remain while the work was going on. This they had some difficulty in doing, until Baboo Heraloll Seal, in the most handsome manner, placed at their disposal a large house of his at Dum-Dum, and there the children were sent for six weeks, returning to Calcutta, when the repairs were completed. The best thanks of the Committee are due to Baboo Heraloll Seal for his kindness and generosity on this occasion.

It will perhaps be an interesting as well as gratifying fact for the friends of the Institution to learn that from a Tabular statement lately prepared by Col. Hannyngton, it appears that during the last 21 years the average number of deaths among the children has scarcely exceeded one per cent. No better testimony than this could be borne to the care and attention bestowed upon the health and comfort of the orphans, and the success of the general management and arrangements of the Asylum. It is in itself sufficient to recommend the Institution to the liberal support of the public. During the last few years the Committee have had to regret the departure of some of the oldest and best friends of the Institution, many of whom had themselves acted as Lady Managers, and by the lamented death last year of Lady Canning, the Asylum lost a Lady Patroness, who took a kind personal interest in its welfare.

The Lady Managers would especially wish to acknowledge the kindness of the following ladies during the period to which the Report refers—Mrs. A. Young, Mrs. Cuthbert, Mrs. H. Braddon, and Mrs. Deffell.

In conclusion, the Lady Managers desire to express their thankfulness to Almighty God for the blessing which has rested upon the Institution, and the success which has attended their efforts for the happiness and welfare of the orphans, during the five years that have elapsed since the last Report was issued.

On the 1st January 1857, there were 71 Wards in the Asylum—on the 1st January 1862, there were 65.

The Statement shows 53 girls to have been admitted—54 to have left—and 5 to have died.

Of those who have left—29 have been removed by Relatives or Friends—12 have obtained situations—3 have gone to the Normal School—3 to other Schools—and 2 have married.

## *Medical Report.*

The following report of the state of health of the wards has been received by the Secretary from Dr. Fayrer.

*Calcutta*, 29*th March* 1862.

My dear Mrs. Fergusson,

I have the pleasure of enclosing you the following brief report on the sanitary condition of the E. F. O. Asylum for the past two years and six months, since it has been under my Medical care.

It is, I am happy to say, very favorable and encouraging.

During the past two years and six months the health of the School has been remarkably good. Not only has there been comparative freedom from any severe Epidemic visitation; but it has enjoyed an unusual immunity from the ordinary complaints that might be expected among so large a number of children.

Two deaths have occurred during the period—

One from Mesenteric Disease and ulcerative Stomatitis—A Couch aged 5 years, who died on the 18th November 1859, at the house of a Lady Manager who had kindly taken her there for change of air.

The other from Dysentery—Miss Roaeh, on the 24th August 1861.

On the whole, I regard the sanitary condition of the Institution as most satisfactory, and I am sure no one could see the numerous happy looking faces of the well clad and well nourished inmates, little children as well as grown girls, without feeling assured that nothing is wanting, that good Management and judicious training can supply, to ensure success, or contribute to their welfare.

The European Female Orphan Asylum is interesting not only as an excellent home and place of education for children who are deprived of their natural Guardians, but as illustrating a fact of no slight interest in relation to the existence of the European in India.

The girls are all of unmixed race, though for the most part born in India. They thus grow up receiving their moral and physical training entirely in Calcutta, and I think that in most points they will bear comparison with the girls of Schools of a like nature at home.

It is a point of no small interest, present as well as future, to ascertain that the European child can thus, under favorable conditions, thrive and attain its full development in the plains of Bengal; and to those parents, whose circumstances may preclude the possibility of sending their children to Europe for education, it cannot but be consolatory and gratifying to know that such is the case and that it is so satisfactorily put to the proof in the Female Orphan Asylum— I append a tabular statement of such disease as there has been; and I may here remark that vaccination having been had recourse to yearly in all cases where it seemed to be required, ~~that~~ so far, no person in the Institution remains unprotected from small pox.

Believe me
Yours very sincerely,
J. FAYRER.

The Lady Managers take this opportunity of thanking Dr. Fitzpatrick and Mr. O'Meara Surgeon Dentists for their kind gratuitous attendance upon the Mistresses and Orphans during the last five years.

## ADMISSIONS INTO HOSPITAL FROM 19TH AUGUST 1859 TO 1ST MARCH 1862, E. F. O. ASYLUM.

### 1859.

| *Months.* | *Admissions* | *Months.* | *Admissions* | *Remarks.* |
|---|---|---|---|---|
| August . . | 11 | November. . | 9 | 72 Children in School on 1st January 1859. |
| September . . | 8 | December. . | 8 | |
| October . . | 13 | | | |
| | | Total... | 49 | |

### 1860.

| *Months.* | *Admissions* | *Months.* | *Admissions* | *Remarks.* |
|---|---|---|---|---|
| January . . | 36 | July . . | 10 | 63 Children in School on 1st January 1860. |
| February . . | 17 | August . . | 7 | |
| March . . | 9 | September . | 0 | |
| April . . | 10 | October . . | 5 | |
| May . . | 10 | November . | 4 | |
| June . . | 9 | December . | 7 | |
| | | Total... | 124 | |

### 1861.

| *Months.* | *Admissions* | *Months.* | *Admissions* | *Remarks.* |
|---|---|---|---|---|
| January . . | 4 | July . , | 30 | 76 Children in School on 1st January 1860.<br>Children all at Dum-Dum during Nov. and Dec. |
| February . . | 3 | August . . | 13 | |
| March . . | 3 | September . | 8 | |
| April . . | 4 | October . . | 1 | |
| May . . | 2 | November . . | | |
| June . . | 0 | December . . | | |
| | | Total... | 68 | |

### 1862.

| *Months.* | *Admissions* | *Months.* | *Admissions* | *Remarks.* |
|---|---|---|---|---|
| January . . | 18 | February . . | 30 | 65 Children in School on 1st January 1862. |
| | | Total... | 41 | |

### ABSTRACT OF ADMISSIONS INTO HOSPITAL FROM 19TH AUGUST 1859 TO 1ST MARCH 1862. E. F. O. ASYLUM.

| *Diseases.* | *Admission in* | | | | *Remarks.* |
|---|---|---|---|---|---|
| | 1859 | 1860 | 1861 | 1862 | |
| Abscess, .. .. .. | 2 | 1 | | | |
| Ascaris Lumbric : .. | 4 | 6 | 3 | .... | Round Worms. |
| Anæmia, .. .. .. | .... | 1 | | | |
| Apthæ, .. .. .. | .... | 1 | | | |
| Bronchitis, .. .. .. | 9 | | | | |
| Bruise, .. .. .. | 1 | .... | 1 | | |
| Bite, ( Dog ) .. .. | .... | 1 | | | |
| Catarrh. .. .. .. | 1 | 2 | 2 | 1 | |
| Cut, .. .. .. | 3 | 1 | | | |
| Cynanche, .. .. .. | .... | 44 | 1 | 21 | Sore throat ulcerated slightly in [some cases, |
| Constipatio, .. .. .. | .... | .... | 1 | | |
| Conjunctivitis, .. .. | .... | .... | 3 | | |
| Cephalalgia,.. .. .. | .... | .... | .... | 1 | |
| Diarrhœa, .. .. .. | 8 | 10 | 7 | 9 | |
| Dysenteria, .. .. .. | 1 | 3 | | | |
| Dysmenorrhœa, .. .. | .... | 1 | 1 | | |
| Eczema, .. .. .. | 1 | | | | |
| Febricula, .. .. .. | 5 | 9 | 10 | 7 | |
| Febris Remit : .. .. | .... | 1 | | | |
| Febris Cont : .. .. | .... | 2 | 8 | | |
| Furunculus,.. .. .. | 1 | 10 | 1 | .... | Boils. |
| Fracture .. .. .. | .... | 1 | .... | .... | Of Arm. |
| Herpes, .. .. .. | .... | 2 | 1 | | |
| Icterus, .. .. .. | .... | 2 | | | |
| Laryngismus Strid: .. | .... | 1 | .... | .... | False Croup. |
| Lichen Tropicus: .. | .... | 1 | | | |
| Myalgia, .. .. .. | .... | 3 | .... | .... | Stiff neck. Muscular pains. |
| Nyctalopia, .. .. .. | .... | 1 | | | |
| Œdema of leg, .. .. | .... | .... | 2 | | |
| Oncyhia, .. .. .. | 1 | | | | |
| Paronychia, .. .. .. | 2 | | | | |
| Parotitis, .. .. .. | .... | 6 | 24 | .... | Mumps. |
| Phlegmon, .. .. .. | .... | 2 | 1 | | |
| Pompholix, .. .. .. | .... | 1 | | | |
| Rubeola, .. .. .. | .... | 4 | .... | .... | Measles. |
| Stomatitis, .. .. .. | 2 | | | | |
| Sprain, .. .. .. | 1 | 1 | 1 | | |
| Scald, .. .. .. | 1 | | | | |
| Vertigo. .. .. .. | .... | .... | .... | 1 | |
| Varicella, .. .. .. | 6 | 6 | | | In 1861, The girls were absent |
| Ulceration of Gums, .. | .... | .... | 1 | 1 | for 2 months at Dum-Dum, |
| Total.. | 49 | 124 | 68 | 41 | during repairs, no register kept. |

J. FAYRER, M. D.

# APPENDIX.

## No. I.

*Names of Girls admitted into the Institution since the last Report.*

| *Names.* | *When born.* | *Where born.* | *Father's Profession.* | *When entered.* |
|---|---|---|---|---|
| Mary McGolderich.... ......... | 6 May 1849.... ...... | Meerut................. | Serjt. H. M.'s 53rd ...... | 3rd January 1857. |
| Caroline H. Connell ......... | 25 May 1855......... | Howrah................. | Mariner.......... . . ...... | 15th January 1857. |
| Caroline Watts...... ............ | 7 April 1853......... | Peshawaur............ | Serjt. H. M.'s 53rd ...... | 12th March 1857. |
| Sarah Whiteman. .............. | 8 January 1852. .... | Peshawaur............ | Hospt. Serjt. 53rd......... | 5th August 1857. |
| Maria McKay. ......... ......... | ——— 1851. ... | Dorunda.... .......... | Serjt. M. Ramghur Batt. | 28th August 1857. |
| Emma Miller... ...... ........... | ——— 1855. .... | ...... ...... ...... ... | ....... . ........... ......... | 1st October 1857. |
| Mary Ann Scott....... ......... | 29 August 1849. ... | Dum-Dum..... ...... | Private 3rd Dragoons.... | 1st October 1857. |
| Charlotte Bigwood...... ...... | 29 August 1851. ... | ......... ... ... ...... | Private 1st Europeans... | 6th October 1857. |
| Mary Ann Jukes. ............... | July 1849............. | Lahore ............... | Private Royal Artillery. | 9th November 1857. |
| Maria O'Callaghan ...... ...... | —— 1849............ | ...... ... ...... ...... | ...... ............. ......... | 6th November 1857. |
| Amelia Tanner......... ......... | November 1848. .... | Secunderabad... .... | L. C. H. M.'s 84th. ...... | 4th March 1858. |
| Harriet Tanner .................. | January 1857.. ...... | Trichinopoly. ........ | Ditto Ditto......... | 4th March 1858. |
| Lucy Tanner...................... | April 1853........... | Ditto........... | Ditto Ditto......... | 4th March 1858. |
| Catherine Thompson........... | ...... ...... ......... | England............... | ........ ...... ............... | 10th April 1858. |
| Margaret Johnstone ........... | November 1852. .... | Brompton... ......... | Private Suppers & Miners | 14th April 1858. |
| Emily Kaine. ..................... | 12 September 1857. | Devonshire......... ... | L. C. H. M.'s 77th ...... | 18th July 1858. |
| Emma Philips..................... | 10 August 1853. .... | N. S. Wales.......... | Merchant......... ......... | 31st Sept. 1858. |
| M. A. Davey......... .......... | 17 May 1850....... . | Wuzeerabad.......... | Private H. M.'s 10th. ... | 18th Sept. 1858. |
| Catherine Parker ............. | May 1850...... ...... | Enniskillen. ......... | Private H. M.'s 35th..... | November 1858. |

## Names of Girls admitted into the Institution since the last Report.—(Continued.)

| Names. | When born. | Where born. | Father's Professon. | When entered. |
|---|---|---|---|---|
| Annie Ward | May 1854 | | Private H. M.'s 35th | 2nd Nov. 1858. |
| Johanna Moore | March 1852. | Chatham | L. C. H. M.'s 98th. | December 1858. |
| Harriet Moore. | —— 1854 | Fort William. | | December 1858. |
| Maria Barker | October 1852. | Stonehouse | Private H. M.'s 10th | 28th Dec. 1858. |
| Emily DeCourcy. | 16 March 1853 | Calcutta | Police Inspector. | 1st January 1859. |
| M. A. J. Roberts | | | H. M.'s Army | 1859. |
| Louisa M. Couch. | 31 May 1850 | Trihinopoly. | H. M.'s 84th | 9th April 1859. |
| Isabella Couch. | 4 October 1853 | | Ditto | 9th April 1859. |
| Mary Jane Rogers | 3 February 1851 | New Ross | Private 2nd Batt. 60th Rifles | 24th February 1860. |
| Anne E. Rogers | 3 May 1857 | British Caffraria. | Private 60th Rifles | 24th February 1860. |
| Mary Cowan. | 3 August 1855 | | Private H. M.'s 87th | 2nd April 1860. |
| Sarah A. Cowan. | December 1857. | Kurrachee | Ditto Ditto | 2nd April 1860. |
| Sarah A. Sheldon | 21 May 1851. | Deesa | Private H. M.'s 8th | 2nd May 1860. |
| Margaret Sheldon | 4 March 1857 | Jullunder. | Ditto Ditto | 2nd May 1860. |
| Madeline S. Forrester | January 1858 | Calcutta | Mariner | 15th May 1860. |
| Sarah A, Godber. | 12 August 1850. | Point de Galle | Corporal H. M.'s 37th | 8th June 1860. |
| Honor Mary Godber | 11 January 1853 | Colombo. | Ditto Ditto | 8th June 1860. |
| Eliza M. Godber | 20 April 1855 | Candy | Ditto Ditto | 8th June 1860. |
| Rachel Maylark | 15 March 1854 | Calcutta | Police | 13th June 1860. |
| Henrietta L. Milner | 12 August 1852. | Poosah | Overseer Govt. Stud. | 15th June 1860. |
| Sarah Milner | 4 October 1854 | Buxar | Ditto Ditto | 15th June 1860. |
| Mary Emma Linsell | 12 December 1855. | Calcutta | Police Sergeant. | 9th July 1860. |
| Georgina Jane Linsell | 19 October 1857 | Jessore. | Jail Darogah | 9th July 1860. |
| Margaret Dempster | 18 December 1854. | Dinapore | Serjt. H. C. Artillery, | 28th July 1860. |

*Names of Girls admitted into the Institution since the last Report.—(Continued.)*

| *Names.* | *When born.* | *Where born.* | *Father's Profession.* | *When entered.* |
|---|---|---|---|---|
| Mary Burns | 25 May 1855 | Ireland. | Private H. M.'s 75th. | 23rd July 1860. |
| M. A, Bennett. | 11 February 1855. | Limerick | R. Artillery | 17th Sept. 1860. |
| Elizabeth Bennett | Ditto Ditto | Ditto | Ditto | 17th Sept. 1860. |
| Ida Patterson | 14 December 1857. | Calcutta | Sub-Engineer | 1st Nov. 1860. |
| Margaret Anna Linsell | November 1849. | Darjeeling | Police Sergeant. | 28th Nov. 1860. |
| Mary Anne Bowden. | 23 September 1855. | Calcutta | Engineer | 31st January 1861. |
| Ellen Emily Bromley. | ... ... ... ... ... ...... | Umballa | Drill Corpl. Artillery. | 4th June 1861. |
| Anne Jane Brown | 19 March 1853 | Chatham. | Private | 8th June 1861. |
| Dolly Holmes. | supposed 1855 | Delhi | .......................... | 4th July 1861. |
| Sarah J. Craven. | 19 October 1851 | Calcutta | Town Sergeant | October 1861. |

## No. II.

*Removal of Orphans from the Asylum.*

### 1857.

Margaret Watling, withdrawn by her Father, 27th April.

Ellen Shields, removed by her Mother, 18th May.

Mary Anne Phillips, removed by her Uncle, Mr. Chamberlain, 10th July.

M. A. Barry, to the Normal School, 23rd July.

Janet Monteith, removed by her Mother, 24th December.

### 1858.

Mary Humbles, died from results of Whooping Cough in the E. F. O. Asylum, 20th March.

Charlotte Kiernan, to serve Mrs. C. Norman, 7th April.

Ellen Holt, to the Normal School, 8th April.

Emma Miller, died of Cholera at her Mother's house, 8th April.

Mary Newall, removed by her Mother, 10th April.

Julia McBride, to serve Mrs. Nickels, 3rd May.

Emma Jones, to the Servants' Home, Alipore.

M. A. Purcell, Ditto Ditto May.

Henrietta Dwyer, to serve Mrs. Muir, November.

Martha Herrold, removed by her Father, November.

Isabella Monteith, removed by her Mother, November.

Caroline Watts, removed by her Mother, November.

Catherine Farrell, removed by her Mother, December.

Caroline Brown, died of Dysentery, 22nd December.

### 1859.

Annie Paine, removed by her Father, January.

Elizabeth Cox, admitted and died the same day, January.

Annie Connair, removed by her Mother to take her to England, April.

Emma Wilkinson, to serve Mrs. Walker, Ballygunge, April.

Sarah Shields, removed by her Mother, June.

Margaret Young, to serve Mrs. Moultrie, November.

Mumford, removed by her Grand-Mother, November.

Arabella Couch, died of mesenteric disease at Mrs. Moultrie's house, November.

Catherine Bury, to serve Mrs. Morgan, December.

Louisa Hamer, removed by her Mother, December.

Fanny Street, removed by her Sister, Mrs. Goodwyn.

Catharine Thompson, removed by her Guardians, Sergeant and Mrs. Kelner.

## 1860.

Sarah Vanzandyk, removed by her Mother, February.

Emily Ashton, removed by Mrs. Moultrie on account of bad health and sent to England to School, March.

Emily De Courcy, removed by her Mother.

Elizabeth Trew, to serve Mrs. Braddon, March.

Emily Kaine, removed by her Father to accompany him to England, December.

Catherine and Maria Barker, removed by Mrs. Norman to the Lawrence Asylum, December.

Catherine Smith, removed by her Sister Mrs. Maseyk, to be married.

## 1861.

Emma Dickinson, to the Normal School, January.

Mary O'Brien, to reside with Mr. and Mrs. Hodgens, March.

Sophia Leach, removed by her Mother, May.

Maria Steele, removed by her Sister Mrs. Marklow.

Mary Hall, to serve Mrs. D. Cunliffe, May.

Lizzy Barnes, removed by her Brother, Mr. Barnes.

Lizzy Hull, went to reside with Mrs. Trotter.

E. Lyness, married to W. Rymer, July.

Mary Fitzpatrick, to serve Mrs. Erskine, July.

Amelia Littlewood, to be placed under the care of Mr. and Mrs. Hodgens.

Sarah Bucknell, to serve Mrs. Richards.

Mary Anne Davey, removed by her Mother, August.

Rosa Dixie, removed by her Sister Mrs. Schmid, December.

Catherine Shiels, removed by her Mother, December.

Jane M'Carthy, removed by her Father, December.

## No. III.

*Receipts and Expenditure from January to December* 1857.

| Receipts. | | | | Expenditure. | | | |
|---|---|---|---|---|---|---|---|
| By Balance, | 3,791 | 2 | 3 | Mistresses' Salaries, | 2,304 | 0 | 0 |
| Government Allowance, | 4,800 | 0 | 0 | Pundit, | 204 | 0 | 0 |
| Subscriptions and Donations, | 5,415 | 0 | 0 | Dhoby and Servants' wages, | 1,699 | 5 | 0 |
| Interest on Company's Paper, | 1,100 | 0 | 0 | Remittances to England for Mistresses' passage and outfit, | 3,091 | 7 | 0 |
| Church Collections, | 419 | 13 | 9 | Ground rent, House tax and Lighting rate, | 270 | 9 | 9 |
| Needle work done by Children, | 92 | 13 | 0 | Sundry repairs to house, | 63 | 2 | 0 |
| | | | | Bazar, House expenses, Clothing, Medicine, &c. &c. | 6,689 | 0 | 0 |
| | | | | Funeral expenses, | 66 | 0 | 0 |
| | | | | Balance in Bank and in Treasurer's hand, | 1,231 | 5 | 3 |
| Total Rs. | 15,618 | 13 | 0 | Total Rs. | 15,618 | 13 | 0 |

## No. IV.

## SUBSCRIPTIONS AND DONATIONS 1857.

| | |
|---|---|
| Abbot, Col. | 60 |
| Allen, Mrs. C. | 30 |
| Archer, Mrs. C. | 40 |
| Atkinson, Mrs. | 12 |
| Atkinson, Capt. W. | 40 |
| Anderson, W. Esq. | 20 |
| Apcar, Seth, Esq. | 10 |
| Allen, R. F. C. Esq. | 10 |
| A. P. | 5 |
| Blunt, H. Esq. | 25 |
| Bell, Major, | 48 |
| Boycott, T. Esq. | 32 |
| Browne, George, Esq. | 50 |
| Blechynden Mrs. R. | 10 |
| Buller, Sir A. | 40 |
| Baker, W. Erskine. | 60 |
| B. Mrs. | 50 |
| Blaeker, Esq. | 16 |
| Bruton, W. C. Esq. | 24 |
| Barton, Mrs. | 12 |
| Beadon, Cecil, Esq. | 25 |
| Beaufort, F. Esq. | 50 |
| Braddon, Mrs. H. E. | 20 |
| Buller, J. R. Esq. | 10 |
| Browne F. W. Esq. | 5 |
| Bush, Lt. Col. 25th N. I. | 12 |
| Canning, Viscountess, | 500 |
| Cowie, Mrs. T. H. | 20 |
| Clapperton, Dr. | 50 |
| Cockburn, G. F. Esq. | 25 |
| Cuthbert, G. G. | 10 |
| Colvile, Sir James | 50 |
| Colvile, Miss. | 20 |
| Cavanagh, Colonel. | 10 |
| Chapman, Mrs. R. B. | 30 |
| Currie, Mrs. E. | 50 |
| Chalmers, H. B. Lieut. | 10 |
| Donaldson, Mrs. England | 10 |
| Dodd, R. Esq. | 20 |
| Dorin, Hon'ble J. A. | 60 |
| Doyne, R. V. Esq. | 20 |
| Dickens, C. H. Captain. | 10 |
| Deffell, Mrs. John. | 50 |
| Douglas, Stewart, Esq. | 10 |
| Davis, Major. | 5 |
| Dundas, H. Esq. | 40 |
| Dames, Col. H. M. 37th | 10 |
| Dow, E. A. Esq. | 10 |
| Edmonstone, G. F. Esq. | 100 |
| Elliot, J. S. Esq. | 16 |
| Eliott, Hon'ble D. | 50 |
| Eliott, W. R. Captain. | 50 |
| Ellerton, Mrs. | 25 |
| Edwards, Lieut. Col. & Mrs. | 16 |
| Fergusson, Mrs. J. H. | 40 |
| Fergusson, Mrs. Hamilton, | 60 |
| Forbes, Hon'ble R. | 25 |
| Fergusson, Miss. H. | 20 |
| Grey, W. Esq. | 10 |
| Goodeve, J. Esq. | 10 |
| Goodeve, Mrs. E | 25 |
| Gibbon, Dr. A. 65th N. I. | 16 |
| Hamilton, Rev. A. | 16 |
| Hamilton, Rowland Esq. | 40 |
| Halliday, Hon'ble Mrs. | 300 |
| Herrold, Mrs. | 80 |
| Harrison, E. F. Esq. | 20 |
| Hodgson, Captain. | 5 |
| Hannyngton Lieut, Col. | 50 |
| Harington, H. B. Esq. | 50 |
| Hamilton, H. C. Esq. | 12 |
| Howe, H. Esq. | 5 |
| Hogg, C. S. Esq. | 50 |
| H. G. D. | 5 |
| Jackson, Lady. | 150 |
| Jervis, Major. | 25 |

## SUBSCRIPTIONS AND DONATIONS 1857.—(*Continued.*)

| | |
|---|---|
| Kinsey, Mrs. | 12 |
| Kilburn, E. D. Esq. | 25 |
| | |
| Lushington, Mrs. C. H. | 60 |
| Loch, Mrs. G. | 65 |
| Lushington, F. A. Esq. | 20 |
| Leckie, Dr. | 50 |
| Ledger, Miss. | 25 |
| Larpent, Sir A. | 32 |
| Leckie, C. S. Esq. | 10 |
| Lee, Mrs. H. I. | 10 |
| Low, Major Genl. | 50 |
| | |
| Montresor, Mrs. | 30 |
| Money, D. T. Esq. | 30 |
| Mackintosh, Mrs. G. G. | 20 |
| Money, Mrs. J. W. B. | 20 |
| May, G. Esq. | 20 |
| Major, | 15 |
| Macrae, Mrs. A. | 20 |
| Malet, Mrs. O. | 20 |
| Mayhew, Mrs. | 12 |
| Maitland, Mrs. W. | 15 |
| Moule, Rev. H. | 12 |
| Mackenzie, Mrs. J. J. | 20 |
| Macnamara, Dr. | 10 |
| Macpherson, Dr. H. | 20 |
| Macpherson, A. G. Esq. | 5 |
| Macpherson, Major. | 20 |
| Mundy, Lt. Col. C. B. | 10 |
| Mackintosh, A. Esq. | 20 |
| Mackinlay, D. Esq. | 50 |
| Manson, Mrs. Col. | 10 |
| Messrs. Morrison and Stevenson, | 10 |
| | |
| Nuthall, Col. and Mrs. | 80 |
| Newbolt, Major. | 15 |
| | |
| O'Shaughnessy, Mrs. R. | 25 |
| Orphans' Friend. | 10 |
| Osborne, G. Esq. | 10 |

| | |
|---|---|
| Palmer, Mrs. J. C. | 30 |
| Palmer, G. Esq. | 30 |
| Palmer, R. S. Esq. | 15 |
| Patton, Mrs. James. | 60 |
| Peacock, Mrs. | 50 |
| Pratt, Archdeacon. | 32 |
| Parsons, Mrs. Colonel. | 100 |
| Payne, Dr. A. | 5 |
| Pridham, Rev. G. | 20 |
| Powell, Colonel. | 40 |
| | |
| Robinson, T. M. | 10 |
| R. B. Mrs. | 10 |
| Ramsay, Miss. | 12 |
| Ritchie, Mrs. W. | 20 |
| Rennie, J. Esq. | 25 |
| Robinson, Mr. G. B. | 25 |
| Row, Dr. J. | 55 |
| Russell, A. W. Esq. | 40 |
| Russell, Mrs. A. W. | 5 |
| Ramsay, Mrs. B. W. | 20 |
| | |
| Spilsbury, Dr. | 60 |
| Stainforth, H. Esq. | 25 |
| Spens, Genl. | 50 |
| St. George, Captain. E. | 20 |
| Strachey, Major. | 50 |
| Stewart, C. B. Esq. | 20 |
| Stewart, Mrs. James | 10 |
| Smith, Dudly, Esq. | 20 |
| Stewart, Lewis, and Co. | 10 |
| Sandes, F. C. Esq. | 50 |
| Schoene, C. E. Esq. | 20 |
| Smith, J. R. B. Esq. | 10 |
| | |
| Torrens, J. H. Esq. | 10 |
| Torrens, J. S. Esq. | 45 |
| Trotter, Mrs. T. C. | 30 |
| Thomas, R. M. Esq. | 20 |
| Thomas, J. P. Esq. | 20 |
| Teil, J. Esq. | 5 |
| Turnbull, Mrs. M. | 12 |

## SUBSCRIPTIONS AND DONATIONS 1857.—(*Continued.*)

| | | |
|---|---|---|
| Taylor, Mrs. Pierce. | .. | 60 |
| Talbot, Hon'ble, Mrs. | .. | 25 |
| Thuillier, Mrs. | .. | 20 |
| Thomson, Mrs. T. | .. | 10 |
| Trevor, Mrs. E. | .. | 10 |
| T. | .. | 10 |
| Voss, Dr. G. | .. | 15 |
| Vardon, Mrs. A. M. | .. | 20 |
| Venables, J. E. Esq. | .. | 10 |
| Watts, T. D. K. Esq. | .. | 50 |
| Wauchope, Mrs. S. | .. | 29 |
| Webb, Dr. A. | .. | 24 |
| Walker, Mrs. A. | .. | 12 |
| Woodrow, Mrs. H. | .. | 25 |
| Wood, H. W. J. Esq. | .. | 20 |
| Young, Mrs. A. R. | .. | 50 |

## No. V.

*Receipts and Expenditure from January to December* 1858.

| RECEIPTS. | | | | EXPENDITURE. | | | |
|---|---|---|---|---|---|---|---|
| Balance in Bank and in Treasurer's hand, | 1,231 | 5 | 3 | Mistresses' Salaries, - - - - - - | 2,399 | 13 | 0 |
| Government allowance, - - - - - - | 4,800 | 0 | 0 | Pundit, - - - - - - - - - - | 204 | 0 | 0 |
| Subscriptions and Donations, - - - | 6,215 | 2 | 6 | Dhoby and servants' wages, - - - - - | 1,761 | 0 | 3 |
| Interest on Company's paper, - - - | 1,060 | 0 | 0 | Ground rent, house tax and lighting rate, | 215 | 14 | 0 |
| Church Collections, - - - - - - - | 1,077 | 12 | 0 | Total rcpairs to premises, - - - - | 2,824 | 4 | 0 |
| Needle work done by children, - - - | 6 | 12 | 0 | New matting and repairs to furniture, | 173 | 8 | 0 |
| Realized by sale of Company's paper for Rs. 1,500, - - - - - - - - | 1,215 | 15 | 5 | Bazar, house expenses, clothing, Medicine, &c. &c. - - - - - - - | 10,064 | 11 | 0 |
| Grant from Relief Fund, - - - - | 4,000 | 0 | 0 | Balance in Bank and in Treasurer's hand, | 1,963 | 12 | 11 |
| Total Rs. | 19,606 | 15 | 2 | Total. Rs. | 19,606 | 15 | 2 |

## No. VI.

## SUBSCRIPTIONS AND DONATIONS 1858.

| | |
|---|---|
| Archer, Mrs. C. | 40 |
| Abbot, Col. A. | 10 |
| Atkinson, Major. | 12 |
| Anderson, P. Esq. | 16 |
| Alabaster, E. Esq. | 35 |
| A Friend thro' Mrs. E. Lushington. | 20 |
| A Friend. | 20 |
| Anderson, W. Esq. | 50 |
| Anderson, Dr. J. | 10 |
| A Friend. | 10 |
| Atkinson, H. M. Esq. | 10 |
| Allen, J. H. Esq. | 25 |
| | |
| Buller, Sir. A. | 40 |
| Bell, Mrs. J. H. | 8 |
| Bruton, W. Esq. | 25 |
| Beadon, Cecil, Esq. | 50 |
| Browne, Brigadier. | 10 |
| Blunt, H. Esq. | 25 |
| Bell, J. D. Esq. | 20 |
| Barry, Dr. | 32 |
| Beaufort, J. Esq. | 75 |
| Braddon, Mrs H. E. | 20 |
| Blacker, G. Esq. | 16 |
| Burney, Rev. H. B. | 12 |
| Burney, Col. | 50 |
| Brand, Esq. | 10 |
| Browne, Claud, H. Esq. | 25 |
| | |
| Canning, Viscountess. | 500 |
| Crawford, Mrs. J. A. | 8 |
| Cockburn, Mrs. F. | 22 |
| Cockburn, Mrs. F., proceeds of box of clothes, | 63 |
| Cockburn, G. F. Esq. | 25 |
| Chapman, Mrs. R. B. | 40 |
| Colvile, Sir J. | 120 |
| Colvin, B. J. Esq. | 100 |
| Currie, Mrs. E. | 50 |
| Coley, Mrs. J. | 12 |
| Cuthbert, Rev. G. G. | 10 |

| | |
|---|---|
| Chichester, Hon'ble A. | 10 |
| Chamier, Capt. C. | 25 |
| Corelery, J. G. Esq. | 20 |
| Carmichael, L. Esq. | 10 |
| Campbell, C. D. Capt. | 25 |
| Collis, S. Esq. | 20 |
| Crooke, H. Esq. | 10 |
| Cook, Capt. | 10 |
| | |
| Dodd, R. Esq. | 20 |
| Dundas, H. Esq. | 10 |
| Dundas, Mrs | 5 |
| Drummond, Hon'ble Mrs. E. | 25 |
| Deffell, Mrs. J. | 25 |
| Duncan, W. Esq. | 20 |
| | |
| Elliot, E. K. Major, | 30 |
| Elliot, J. Scott, Esq. | 16 |
| Eliott, W. R. Captain. | 74 |
| Eliott, Honble. D. | 50 |
| Elliot, W. K. Esq. | 50 |
| Eglinton, R. N. Esq. | 50 |
| | |
| Fraser, H. Esq. | 10 |
| F. | 10 |
| Fergusson, Mrs. Hamilton. | 60 |
| Fergusson, Mrs. J. H. | 20 |
| Fergusson, Miss. | 10 |
| Fergusson, James. Esq. | 50 |
| Ferris, Mrs. W. F. | 10 |
| Fisher, A. Esq. | 16 |
| Forbes, Mrs. H. | 50 |
| | |
| Grant, Hon'ble, J. P. | |
| Grant, Dr. A. | 25 |
| Goodenough, A. F. Esq. | 5 |
| Goodeve, Mrs. E. | 25 |
| Collected by do. for rewards, | 45 |
| | |
| Harington, Honble, Mrs. H. B. | 100 |

## SUBSCRIPTIONS AND DONATIONS 1858.—(*Continued.*)

| | |
|---|---|
| Halliday, Honble, Mrs. F. | 300 |
| Hogg, C. S. Esq. | 50 |
| Hodgson, Capt. | 15 |
| Hannyngton, Col. & Mrs. | 57 |
| Hobday, Mrs. | 4 |
| Hill, Mrs. E. | 30 |
| Harrison, R. P. H. Esq. | 25 |
| Harrison, Mrs. E. F. | 20 |
| Harrold, Mrs. | 40 |
| Hill, Major. | 12 |
| Henslowe, Captain. | 10 |
| Henry, Esq. | 25 |
| Innes, Mrs. J. McLeod | 20 |
| Jackson, Lady, | 150 |
| Lushington, Mrs. C. H. | 60 |
| Lushington, Mrs. E. | 60 |
| Loch, Mrs. G. | 60 |
| Lee, Mrs. H. I. | 18 |
| Low, Major, Genl. | 50 |
| Larpent, Lady, | 20 |
| Lambert, Capt. J. P. | 20 |
| Lovely, Rev. G. | 10 |
| Montgomery, R. Esq. | 100 |
| Money, Mrs. J. W. B. | 20 |
| Money, D. F. Esq. | 30 |
| Macpherson, Mrs. W. | 32 |
| Macpherson, Dr. H. | 25 |
| Mackenzie, Mrs. J. J. | 20 |
| Moule, Rev. H. | 12 |
| Mayhew, Mrs. | 12 |
| Maitland, Mrs. W. | 15 |
| Moffat, Mrs. R. | 30 |
| Money, Mrs. | 10 |
| Malet, Mrs. O. | 20 |
| Morgan, Mrs. W. | 25 |
| Macrae, Mrs. A. | 20 |
| Moultrie, Mrs. | 50 |
| May, G. Esq. | 10 |
| Maxwell, Mrs. | 5 |

| | |
|---|---|
| Martin, Major, | 25 |
| McCarthy M. Esq. | 50 |
| Nuthall, Col. | 30 |
| Newbolt, Major. | 30 |
| Outram, Lady, | 75 |
| Peacock, Hon'ble Mrs. | 50 |
| Parsons, General, | 100 |
| Pratt, Archdeacon, | 32 |
| Pridham, Rev. G. | 20 |
| Patton, Mrs. J. | 60 |
| Payne, Dr. A. | 20 |
| Phelps, Rev. W. W. | 10 |
| Palmer, Mrs. J. C. | 30 |
| Palmer, G. Esq. | 30 |
| Palmer, R. S. Esq. | 32 |
| Paton, Lieut. Col. | 10 |
| Ritchie, Mrs. W. | 20 |
| Roer, J. Esq. | 5 |
| Roberts, J. B. Esq. | 10 |
| Raban, Capt. | 20 |
| Reddie, Capt. | 10 |
| Richards, Genl. Sir, W. | 115 |
| Stewart, Mrs. J. | 20 |
| Scott, Col. E. W. | 50 |
| Shekleton, Mrs. | 20 |
| Spence, T. K. Major. | 30 |
| Stainforth, Mrs, | 60 |
| Smith, F. R. B. Esq. | 55 |
| Smith, D. Esq. | 25 |
| Smith, H. Scott Esq. | 25 |
| Stuart, Col. and Mrs. C. | 50 |
| Sterndale, W. C. Esq. | 10 |
| Sherwill, Capt. from a fund at his disposal for Orphans. | 100 |
| Shannon, H. M. Ship, from petty Officers, Seamen and Marines. | 80 |

## SUBSCRIPTIONS AND DONATIONS, 1858.—(*Continued.*)

| | | |
|---|---|---|
| Taylor, Mrs. Pierce. | .. | 60 |
| Terry, Mrs. W. M. | .. | 12 |
| Trotter, Mrs. T. C. | .. | 10 |
| Turnbull, Mrs. M. | .. | 12 |
| Thullier, Mrs. | .. | 20 |
| Voss, Dr. G. | .. | 15 |
| Voyle, Capt. | .. | 8 |
| Wauchope, Mrs. | .. | 60 |
| Whitehead, J. Esq. | .. | 25 |
| Walters, Rev. M. C. | .. | 50 |
| Young, Mrs. C. B. | .. | 5 |
| Young, Mrs. A. R. | .. | 50 |
| Collected by do. for Rewards. | .. | 117 |

## No. VII.

*Receipts and Expenditure from January to December* 1859.

| RECEIPTS. | | | | EXPENDITURE. | | | |
|---|---|---|---|---|---|---|---|
| Balance in Bank and in Treasurer's hand, | 1,963 | 12 | 11 | Mistresses' salaries, | 2,268 | 8 | 0 |
| Government allowance, | 4,800 | 0 | 0 | Pundit, | 204 | 0 | 0 |
| Subscriptions and Donations, | 5,535 | 2 | 0 | Dhoby and servants' wages, | 1,884 | 3 | 0 |
| Interest on Company's paper, | 870 | 0 | 0 | Remitted to England, bills for Mistresses, passage and outfit and children's cold weather clothing. | 1,537 | 15 | 0 |
| Church collections, | 1,276 | 9 | 9 | Ground rent, House tax and lighting rate, | 305 | 0 | 0 |
| Proceeds of sale of Government, Securities for 2000, Rs. | 1,798 | 10 | 8 | Sundry repairs to house, | 564 | 15 | 0 |
| Fines paid by Mrs. Shield, | 300 | 0 | 0 | Bazar, house expenses, clothing, shoes, Medicine, &c. &c. | 8,342 | 0 | 0 |
| Ditto by Mrs. Bassage. | 410 | 0 | 0 | Funeral expenses. | 45 | 0 | 0 |
| | | | | Balance in Bank and in Treasurer's hand. | 1,802 | 10 | 4 |
| Total. Rs. | 16,954 | 3 | 4 | Total. Rs. | 16,954 | 3 | 4 |

## No. VIII.

### SUBSCRIPTIONS AND DONATIONS 1859.

| | |
|---|---|
| A Friend thro' Mrs. Goodeve. | 100 |
| Allen, Mrs. J. | 32 |
| Anderson, P. Esq. | 8 |
| Archer, Mrs. C. | 40 |
| Ainslie, Mrs. D. | 24 |
| A Friend thro' J. H. Norman. Esq. | 25 |
| A Friend thro' Rev. H. Moule, | 25 |
| A Friend thro' Mrs. G. | 5 |
| A Friend thro' Mrs. Hannyngton. | 50 |
| A Friend thro' Mrs. Deffell. | 50 |
| A Friend. | 20 |
| A Friend thro' J. H. Fergusson, Esq. | 10 |
| Atkinson, Major. | 12 |
| Barddon, Mrs. H. E. | 20 |
| Barry, Dr. Esq. | 32 |
| Beaufort, J. Esq. | 50 |
| Blechynden, R. Esq. | |
| Burgett, Mrs. E. | 15 |
| Boycott, Dr. | 15 |
| Bower, Brigadier. | 10 |
| Barker, Sir. G. | 20 |
| Browne, Lady U. | 5 |
| Burne, Mrs. H. K. | 20 |
| Becher, Capt. | 10 |
| Buller, Sir. A. | 10 |
| Beadon, Cecil. Esq. | 25 |
| Bell, Mrs. J. D. | 10 |
| Buckland, Mrs. C. | 12 |
| Bell, W. Esq. | 25 |
| Browne, G. Esq. | 50 |
| Browning, Colin. Esq. | 25 |
| Bacon, Capt. B. | 10 |
| Canning, Viscountess, | 500 |
| Cockburn, G. F. Esq. | 25 |
| Crozier, Mrs. W. | 20 |
| Cowell, Mrs. E. | 10 |
| Coley, Rev. J. | 12 |
| Cotton, Mrs. | 20 |
| Calcutta, Bishop of | 40 |
| Crawford, Mrs. A. | 18 |
| Cockburn, Mrs. F. | 66 |
| Colvile, Sir. J. | 100 |
| Cowie, D. Esq. | 16 |
| Calvert, Capt. | 10 |
| Cheek Dr. G. N. | 100 |
| Chapman, Mrs. R. B. | 40 |
| Chesney, Capt. | 25 |
| Campbell, Lady, | 15 |
| Cowie, T. H. Esq. | 25 |
| Cuthbert, Rev. G. G. | 16 |
| Cumine, P. Esq. | 16 |
| Cumine, C. Esq. | 10 |
| Dundas, H. Esq. | 10 |
| Davidson, Mrs. E. | 20 |
| Drummond, Hon'ble Mrs. E. | 25 |
| Donaldson Mrs. | 10 |
| Duncan, W. Esq. | 30 |
| Dickens, Capt. C. H. | 25 |
| Edmonstone, G. F. Esq. | 100 |
| Edmonstone, E. Esq. | 15 |
| Elliot, Major. E. K. | 30 |
| Elliot, J. Scott, Esq. | 16 |
| Forsyth, Dr. | 60 |
| Fraser, Capt. | 55 |
| Fergusson, Mrs. J. H, | 20 |
| Forbes, Mrs. H. | 50 |
| Fergusson, Mrs. Hamilton. | 60 |
| Griffiths, S. P. Esq. | 10 |
| Gordon, J. D. Esq. | 15 |
| Grant, Dr. A. | 25 |
| G. Mrs. | 2 |
| Grant, Hon'ble J. P. | 50 |
| Grant, Hon'ble, Mrs. J. P. | 10 |
| Grey, W. Esq. | 50 |

## SUBSCRIPTIONS AND DONATIONS, 1859.—(*Continued.*)

| | |
|---|---|
| Goodeve, Mrs. E. | 25 |
| Hannyngton, Col. and Mrs. | 75 |
| Hutton, Mrs. | 48 |
| Hill, Major. | 24 |
| Harington, Hon'ble Mrs. H. B. | 100 |
| Hamilton, Mrs. H. C. | 12 |
| Hemfrey, Mrs. | 20 |
| Heron, Mrs. George, | 20 |
| Hodgson, Mrs. C. J. | 20 |
| Heathcote, Mrs. J. A. | 20 |
| Harrison, Mrs. E. T. | 10 |
| Hatch, Mrs. | 15 |
| Haythorne, Capt. | 38 |
| Innes, Mrs McLeod, | 40 |
| Jackson, Sir, C. | 250 |
| Johnson, Mrs. J. | 10 |
| Kerr, J. Esq. | 15 |
| Lee, Capt. W. N. | 60 |
| Leycester, G. P. Esq. | 100 |
| Lushington, Mrs. E. | 60 |
| Lushington, Mrs. C. H. | 60 |
| Loch, Mrs. G. | 85 |
| Montgomery, Sir, B. and Lady, | 100 |
| Macpherson, Dr. H. | 25 |
| Macpherson, Mrs. W. | 32 |
| Macrae, Mrs. A. | 20 |
| Morgan, Mrs. W. | 50 |
| Mackenzie, Mrs. C. | 10 |
| Moultrie, Mrs. | 50 |
| Money, Mrs. J. W. B. | 20 |
| Mair, D. K. Esq. | 16 |
| Money, D. T. Esq. | 10 |
| Maitland, W. Esq. | 15 |
| Moule, Rev. H. | 12 |
| Miller, E. Esq. | 20 |
| Moffat, Mrs. R. | 24 |
| Manuk, Mrs. | 40 |
| Malet, Mrs. O. W. | 20 |
| Norman, J. H. Esq. | 25 |
| Newbolt, Major, | 30 |
| Outram, Lady, | 125 |
| Parsons, Mrs. General. | 100 |
| Petrie, Miss. | 10 |
| Pratt, Archdeacon, | 32 |
| Pridham, Rev. G. | 20 |
| Patton, Mrs. James, | 60 |
| Palmer, Mrs. J. C. | 30 |
| Palmer, G. Esq. | 30 |
| Palmer, R. S. Esq. | 32 |
| Palmer, E. Esq. | 20 |
| Payne, Dr. A. | 20 |
| Rennie, Mrs. | 30 |
| Ritchie, Mrs. W. | 20 |
| Rickets, Hon'ble, H. | 180 |
| Russell, A. W. Esq. | 35 |
| Russell, Capt. W. C. | 50 |
| Russell, Major W. C. | 50 |
| Richards, Mrs. | 25 |
| Robinson, J. M. Esq. | 50 |
| Rose, Mrs. James, | 50 |
| Richards, Genl. Sir, W. | 50 |
| Sconce, A. Esq. | 25 |
| Simpson, Mrs. E. | 50 |
| Smith, J. R. Bullen. | 20 |
| Stainforth, Mrs. | 45 |
| Strachey, Major, | 50 |
| Smoult, W. H. Esq. | 32 |
| Scott, Col. E. W. | 50 |
| Stuart, James, Esq. | 50 |
| Samuells, Mrs. | 15 |
| Smith, H. Scott, Esq. | 40 |
| Shekleton, Mrs. | 20 |
| Spence, Major. J. K. | 30 |
| Stack, Mrs. | 50 |
| Simpson, R. Esq. | 16 |

SUBSCRIPTIONS AND DONATIONS, 1859.—*(Continued.)*

| | | | |
|---|---|---|---|
| Schoene, C. Esq. | 50 | Turnbull, Mrs. M. | 12 |
| Schiller, F. Esq. | 50 | | |
| Smith, Mrs. B. | 20 | Voyle, Capt. | 8 |
| Shearin, Mrs. | 10 | Voss, Dr. G. | 15 |
| | | | |
| Trevor, E. T. Esq. | 50 | Wells, Lady, | 50 |
| Thomson, Mrs. Dr. T. | 10 | Welch, J. Esq. | 20 |
| Taylor, Mrs. Pierce. | 30 | Wray, G. O. Esq. | 16 |
| Thomas, J. P. Esq. | 50 | Woodrow, Mrs. H. | 25 |
| Thomas, R. Esq. | 50 | Walker, Mrs. A. | 44 |
| Trotter, Mrs. T. E. | 15 | Webb, Dr. A. | 24 |
| Thomson, Ninian, Esq. | 10 | Wauchope, Mrs. | 60 |
| Thullier, Mrs. | 20 | | |
| Thompson, Mrs. R. | 20 | Young, Mrs. A. R. | 60 |

## No. IX.

*Receipts and Expenditure from January to December* 1860.

| RECEIPTS. | | | | EXPENDITURE. | | | |
|---|---|---|---|---|---|---|---|
| Balance in Bank and in Treasurer's hand | 1,802 | 10 | 4 | Mistresses' salaries, | 2,500 | 0 | 0 |
| Government allowance, | 4,800 | 0 | 0 | Pundit, | 34 | 0 | 0 |
| Subscriptions and Donations, | 7,472 | 12 | 3 | Dhoby and servants' wages, | 1,957 | 8 | 0 |
| Interest on Company's Paper, | 921 | 3 | 2 | Remitted to England for Mestresses', passage and outfit. | 1,800 | 3 | 3 |
| Church Collections, | 1,153 | 13 | 0 | Ground rent, house tax and lighting rate, | 305 | 2 | 0 |
| Needle work done by children, | 28 | 10 | 6 | Sundry repairs to house | 257 | 0 | 0 |
| Grant from Relief Fund, | 2,500 | 0 | 0 | Bazar, house expenses, clothing, Medicine, &c. &c. | 9,276 | 6 | 5 |
| | | | | Balance in Bank and in Treasurer's hand, | 2,548 | 13 | 7 |
| Total. Rs. | 18,679 | 1 | 3 | Total. Rs. | 18,679 | 1 | 3 |

## No. X.

## SUBSCRIPTIONS AND DONATIONS, 1860.

| | | |
|---|---|---|
| A Friend thro' Mrs. Goodeve, | 100 | 0 |
| A Friend thro' ditto | 100 | 0 |
| A Friend thro' ditto | 50 | 0 |
| Angelo Eliot, Esq. | 50 | 0 |
| A Friend thro' Mrs. Moultrie, | 18 | 0 |
| Ayerst, Rev W. | 10 | 0 |
| Ainslie, Mrs. W. | 10 | 0 |
| Archer, Mrs. C. | 40 | 0 |
| Anderson, P. Esq. | 10 | 0 |
| Allen, Mrs. W. | 32 | 0 |
| Anderson, W. Esq. | 50 | 0 |
| Atkinson, Major, | 12 | 0 |
| A Stranger, | 25 | 0 |
| | | |
| Boileau, Col. A. H. E. Thank offering, | 100 | 0 |
| Browne Claud, Esq. | 150 | 0 |
| Bullen, Smith, Mrs. | 20 | 0 |
| Burgett, Mrs. E. | 15 | 0 |
| Barry, Dr. | 32 | 0 |
| Beaufort, T. Esq. | 50 | 0 |
| Burney, Mrs. H. B. | 12 | 0 |
| Bruton, W. C. Esq. | 25 | 0 |
| Braddon, Mrs. H. | 10 | 0 |
| Blechynden, R. Esq. | 24 | 0 |
| Beadon, Cecil, Esq. | 25 | 0 |
| Beale, Dr. A. | 50 | 0 |
| Bulnois, C. Esq. | 25 | 0 |
| Boycott, Dr. | 10 | 0 |
| Barton, G. Esq. | 25 | 0 |
| Bacon, Capt. B | 10 | 0 |
| Balfour, L. Esq. | 25 | 0 |
| Brace, Mrs. | 16 | 0 |
| Birch, Mrs. Walter, | 30 | 0 |
| Bayley, H. B. Esq. | 50 | 0 |
| | | |
| Canning, Viscountess, | 500 | 0 |
| Chesney, Major, | 25 | 0 |
| Chapman, C. Esq. | 30 | 0 |
| Cowell, Mrs. E. | 10 | 0 |
| Campbell, Sir E. & Lady, | 46 | 0 |
| Cockerell, H. A. Esq. | 25 | 0 |
| Cotton, Mrs. | 20 | 0 |
| Calcutta, Bishop of | 40 | 0 |
| Crawford, J. A. Esq. | 6 | 0 |
| Cockburn, Mrs. F. | 6 | 0 |
| Cochrane, Miss. | 3 | 0 |
| Cunliffe Mrs. D. | 20 | 0 |
| Cowie, T. H. Esq. | 25 | 0 |
| Cockburn, G. F. Esq. | 25 | 0 |
| Crozier, Mrs. W. | 20 | 0 |
| Cadell, Miss. | 20 | 0 |
| Chapman, R. B. Esq. | 10 | 0 |
| Cuthbert, Rev. G. G. | 10 | 0 |
| | | |
| Duncan, W. Esq. | 30 | 0 |
| Deffell, Mrs. | 60 | 0 |
| Deffell, Mrs. collected for rewards. | 15 | 0 |
| Dickson, George, Esq. | 30 | 0 |
| Dyer, Mrs. | 20 | 0 |
| Dodd, R. Esq. | 32 | 0 |
| Davidson, Capt. E. | 55 | 0 |
| Dove, Mrs C. K. | 15 | 0 |
| Drummond, Hon'ble Mrs. E. | 25 | 0 |
| Dickenson, C. Esq. | 50 | 0 |
| Donaldson, Mrs. | 10 | 0 |
| | | |
| Erskine, Mrs. C. | 15 | 0 |
| Elliot, Major. E. K. | 50 | 0 |
| Eliott, Capt. W. R. | 50 | 0 |
| Ebden, Dr. | 50 | 0 |
| | | |
| From the Charity fund, 2nd Battalion 60th Rifles. | 100 | 0 |
| Frere, Hon'ble Lady, | 100 | 0 |
| Forsyth, Dr. | 60 | 0 |
| Fielding, A. Esq, | 25 | 0 |

### SUBSCRIPTIONS AND DONATIONS, 1860.—(*Continued*)

| | | |
|---|---|---|
| Fergusson, Mrs. J. H. | 40 | 0 |
| Fergusson, Mrs. .. | 10 | 0 |
| Forbes, Mrs. H. .. | 50 | 0 |
| Fitzgerald, Capt. C. M. | 25 | 0 |
| Fitzwilliam, Mrs. & Miss. .. | 40 | 0 |
| Grant, Hon'ble J. P... | 100 | 0 |
| Grant, Dr. A. .. | 25 | 0 |
| Grant, Lady, H. .. | 20 | 0 |
| Grey, W. Esq. .. | 100 | 0 |
| Goodwyn, Mrs. A. .. | 18 | 0 |
| Gladstone, S. Esq. .. | 16 | 0 |
| Gordon, H. T. Esq. .. | 25 | 0 |
| Goodeve, Mrs. E. .. | 50 | 0 |
| Harington, Hon'ble Mrs. H. B. .. | 100 | 0 |
| Henslowe, Capt. S. V. | 10 | 0 |
| Halliday, Hon'ble Mrs. | 81 | 0 |
| Hutton, Mrs. .. | 48 | 0 |
| Hatch, Mrs. .. | 20 | 0 |
| Haddon, Mrs. E. .. | 12 | 0 |
| Haddon, Mrs. E. from two friends. .. | 35 | 0 |
| Hill, Major. .. | 24 | 0 |
| Hamilton, Mrs. H. C... | 12 | 0 |
| Heron, Mrs. G. .. | 20 | 0 |
| Hannyngton, Col. & Mrs. | 60 | 0 |
| Hemfrey, Mrs. .. | 20 | 0 |
| Harrison, Major and Officers of H. M. 37th Regt. .. | 100 | 0 |
| Haythorne, Col. .. | 20 | 0 |
| Holditch, Col. .. | 10 | 0 |
| Jackson, Sir C. .. | 150 | 0 |
| Johnson, Mrs. R. .. | 5 | 0 |
| Johnson, W. Esq. .. | 25 | 0 |
| Johnson, E. Esq. .. | 16 | 0 |
| Knowles, Mr. and Mrs. Herbert. .. | 75 | 0 |

| | | |
|---|---|---|
| Kilburn, E. D. Esq. .. | 50 | 0 |
| Kerr, J. Esq. .. | 50 | 0 |
| Lushington, Mrs. C. H. | 60 | 0 |
| Lushington, E. .. | 60 | 0 |
| Lushington, Lady M... | 50 | 0 |
| Lovely, Rev. G. .. | 10 | 0 |
| Lees, Capt. W. N. .. | 25 | 0 |
| Loch, Mrs. G. .. | 60 | 0 |
| Leckie, C. tho' Mrs. Herbert Knowles, .. | 20 | 0 |
| Lawford, H. B. Esq... | 50 | 0 |
| Montgomery, Sir B. and Lady. .. | 200 | 0 |
| Macpherson, Dr. H. .. | 32 | 0 |
| Macpherson, Mrs. John. | 20 | 0 |
| Macpherson, A. G. Esq. | 10 | 0 |
| Mackay, M. Esq. .. | 40 | 0 |
| Money, A. Esq. .. | 50 | 0 |
| M. M. .. | 5 | 0 |
| Manuk, Mrs. .. | 45 | 0 |
| Mayhew, Mrs. .. | 30 | 0 |
| Moultrie, Mrs. .. | 60 | 0 |
| Money, Mrs. J. W. B. | 20 | 0 |
| Morgan, Mrs. W. .. | 70 | 0 |
| Macrae, Mrs. A. .. | 20 | 0 |
| Moule, Rev. H. .. | 20 | 0 |
| Malet, Mrs. O. W. .. | 20 | 0 |
| Non-commissioned Officers and men of H. M. Right Wing 73rd Regt. .. | 71 | 0 |
| Napier, Genl. Sir R.. | 10 | 0 |
| Newbolt, Major, .. | 15 | 0 |
| Parsons, Mrs. Genl. .. | 100 | 0 |
| Peacock, Lady, .. | 50 | 0 |
| Probyn, Mrs. G. W. .. | 32 | 0 |
| Pratt, Archdeacon. .. | 32 | 0 |
| Pope, Capt. and Mrs. | 20 | 0 |
| Palmer, Mrs. J. C. .. | 30 | 0 |
| Palmer, G. Esq. .. | 30 | 0 |

## SUBSCRIPTIONS AND DONATIONS, 1860.—(*Continued.*)

| | | |
|---|---|---|
| Palmer, R. S. Esq. . . | 32 | 0 |
| Patton, Mrs. J. . . | 15 | 0 |
| Palmer, E. Esq. . . | 20 | 0 |
| Payne, Dr. A. . . | 20 | 0 |
| Russell, Major W. C. . | 150 | 0 |
| Reddie, Capt. . . | 16 | 0 |
| Rowe, J. Esq. . . | 10 | 0 |
| Ritchie, Mrs. W. . . | 20 | 0 |
| Richards, Mrs., Surplus of money advanced for the purchase of books. | 60 | 10 |
| Rennie, Mrs. . . | 15 | 0 |
| Stewart, Mrs. W. C. . . | 24 | 0 |
| Smith, H. Scott, Esq. | 60 | 0 |
| Sandeman, Mrs. H. . . | 18 | 0 |
| Steuart, Mc. A. Esq.. . | 50 | 0 |
| Stanton, Capt. . . | 50 | 0 |
| Sutcliffe, Mrs. . . | 10 | 0 |
| Smoult, W. H. Esq. . . | 32 | 0 |
| Scott, Col. E. W. . . | 50 | 0 |
| Sconce, A. Esq. . . | 50 | 0 |
| Simpson, Col. R. S. . . | 50 | 0 |
| Samuells, Mrs. . . | 5 | 0 |
| Stainforth, Mrs. . . | 60 | 0 |
| Seton Karr, Mrs. . . | 16 | 0 |
| Smith, Col. Baird. . . | 20 | 0 |
| Strachey, Major . . | 50 | 0 |
| Shekleton, Mrs. . . | 20 | 0 |

| | | |
|---|---|---|
| Surplus, Balance of Mistress' passage from England. . . | 23 | 0 |
| Sconce, Major. J. K. . . | 30 | 0 |
| Taylor, Mrs. Pierce. . . | 60 | 0 |
| Trevor, E. T. Esq. . . | 25 | 0 |
| Thomson, W. B. Col. | 24 | 0 |
| Thullier, Mrs. . . | 20 | 0 |
| Turnbull, Mrs. G. . . | 16 | 0 |
| Thomson, Mrs. Dr. T. | 10 | 0 |
| Turnbnll, Mrs. M. . . | 12 | 0 |
| Weinholt, J. Esq. thro' Mrs. Knowles. . . | 100 | 0 |
| Wells, Sir, M. L. . . | 50 | 0 |
| Woodrow, Mrs. H. . . | 25 | 0 |
| Walker, Mrs. A. . . | 12 | 0 |
| Wray, G. O. Esq. . . | 10 | 0 |
| Wilson, Mrs. James. . . | 50 | 0 |
| Webb, Dr. . . | 3 | 0 |
| Watson, McCrindle . . | 10 | 0 |
| Wauchope, Mrs. . . | 60 | 0 |
| Waterfield, W. Esq. . . | 20 | 0 |
| Voss. Dr. . . | 15 | 0 |
| X. Y. Z. thro' Mrs. Deffell. . . | 180 | 0 |
| Young, Mrs. A. R. . . | 60 | 0 |

## No. XI.

*Receipts and Expenditure from January to December* 1861.

| RECEIPTS. | | | | EXPENDITURE. | | | |
|---|---|---|---|---|---|---|---|
| Balance of last year, | 2,498 | 1 | 7 | Mistresses' Salaries, | 2,320 | 0 | 0 |
| Government allowance, | 4,800 | 0 | 0 | Servants' wages, | 2,003 | 2 | 0 |
| Subscriptions and Donations, | 6,003 | 10 | 9 | Ground rent, house tax and lighting tax, | 491 | 3 | 6 |
| Interest on Company's Paper, | 914 | 8 | 0 | Passage and outfit for Mistress, | 288 | 7 | 3 |
| Church Collections, | 2,469 | 10 | 0 | Petty repairs to house, | 87 | 10 | 0 |
| Proceeds from Sale of needle works, | 53 | 10 | 9 | Commission on Bank deposit, | 2 | 4 | 6 |
| Ditto Ditto the Fancy Sale, | 600 | 15 | 0 | Bazar expenses, Clothing, Medicine &c. | 8,650 | 1 | 1 |
| Refund of passage and outfit money, | 1,270 | 0 | 0 | Deposit in the Bank on 31st Decr. 1861. | 4,694 | 15 | 9 |
| Ditto of Income tax, | 44 | 4 | 0 | Balance in the hand of the Treasurer, | 117 | 0 | 0 |
| Total. Rs. | 18,654 | 12 | 1 | Total. Rs. | 18,654 | 12 | 1 |

## No. XII.

### SUBSCRIPTIONS AND DONATIONS, 1861.

| | | | |
|---|---|---|---|
| Anderson, W.A. | 10 | 0 | 0 |
| Archer, Mrs. | 40 | 0 | 0 |
| Atkinson, Mrs. W. S. | 50 | 0 | 0 |
| Atkinson, Major. | 12 | 0 | 0 |
| Bacon, Captain. | 20 | 0 | 0 |
| Balfour, Mrs. Lewis. | 15 | 0 | 0 |
| Balfour, Mrs. Col. | 50 | 0 | 0 |
| Barry, Dr. J. B. | 32 | 0 | 0 |
| Batchelor, Mrs. | 5 | 0 | 0 |
| Beale, Dr. A. | 50 | 0 | 0 |
| Beaufort, J. Esq. | 25 | 0 | 0 |
| Birch, Mrs. Walter. (Senior) | 50 | 0 | 0 |
| Blechynden, R. Esq. | 24 | 0 | 0 |
| Boileau, Col. H. E. | 20 | 0 | 0 |
| Braddon, Mrs. H. | 20 | 0 | 0 |
| Bruton, W. C. Esq. | 25 | 0 | 0 |
| Burns, Serjeant. T. | 5 | 0 | 0 |
| Canning, Viscountess. | 500 | 0 | 0 |
| Chapman, Mrs. | 24 | 0 | 0 |
| Chesney, Mrs. | 25 | 0 | 0 |
| Clark, Mrs. | 6 | 0 | 0 |
| Cockburn, Mrs. F. | 29 | 0 | 0 |
| Cotton, Mrs. | 10 | 0 | 0 |
| Cowell, Mrs. E. | 10 | 0 | 0 |
| Cowie, T. H. Esq. | 25 | 0 | 0 |
| Crozier, Mrs. W. | 20 | 0 | 0 |
| Cunliffe, Mrs. D. | 55 | 0 | 0 |
| Daniells, Captain. | 50 | 0 | 0 |
| Davidson, Captain. E. | 60 | 0 | 0 |
| Deffell, Mrs. | 60 | 0 | 0 |
| Devereux, Hon. Mrs. | 20 | 10 | 6 |
| Dodd, R. Esq. | 16 | 0 | 0 |
| Donaldson, Mrs. | 10 | 0 | 0 |
| Dove, Mrs. C. K. | 20 | 0 | 0 |
| Drummond, Hon. Mrs. | 25 | 0 | 0 |
| Durand, Mrs. | 25 | 0 | 0 |
| Elliott, Major. E. K. | 50 | 0 | 0 |
| Erskine, Mrs. C. | 60 | 0 | 0 |
| Fergusson, Mrs. Hamilton, | 60 | 0 | 0 |
| Fergusson, Mrs. J. H. | 65 | 0 | 0 |
| Fergusson, Miss. | 100 | 0 | 0 |
| Folkard, Mrs. | 24 | 0 | 0 |
| Forbes, Mrs. H. | 25 | 0 | 0 |
| Forsyth, Dr. J. | 60 | 0 | 0 |
| Frere, Lady, | 100 | 0 | 0 |
| Friend thro' R. S. Moncrieff Esq. | 200 | 0 | 0 |
| Friends thro' Mrs. Goodeve. | 100 | 0 | 0 |
| Friends, thro' Mrs. Richards, | 25 | 0 | 0 |
| Friends thro' Mrs. Hyne. | 15 | 0 | 0 |
| Goodeve, Mrs. E. | 50 | 0 | 0 |
| Goodwyn, Mrs. | 36 | 0 | 0 |
| Grant, Mrs. J. | 5 | 0 | 0 |
| Grey, W. Esq. | 50 | 0 | 0 |
| Haddon, Mrs. E. | 61 | 0 | 0 |
| Hannyngton, Mrs. | 45 | 0 | 0 |
| Harington, Mrs. H. B. | 100 | 0 | 0 |
| Hatch, Mrs. | 20 | 0 | 0 |
| Hemfrey, Mrs. | 20 | 0 | 0 |
| Henslowe, Capt. S. V. | 10 | 0 | 0 |
| Heron, Mrs. George, | 20 | 0 | 0 |
| Herschell, W. J. Esq. | 100 | 0 | 0 |
| Hill, Major G. M. | 24 | 0 | 0 |
| Hogg, C. S. Esq. | 50 | 0 | 0 |
| Hutton, Mrs. | 48 | 0 | 0 |
| Jackson, Sir C. R. M. | 150 | 0 | 0 |
| Knowles, Mrs. Herbert, | 60 | 0 | 0 |
| Lawford, H. B. Esq. | 20 | 0 | 0 |

## SUBSCRIPTIONS AND DONATIONS 1861.—(*Continued.*)

| | | | |
|---|---|---|---|
| Leonard, H. Esq. | 10 | 0 | 0 |
| Lewis, Mrs. H. | 60 | 0 | 0 |
| Loch, Mrs. George, | 30 | 0 | 0 |
| Lord Bishop, | 50 | 0 | 0 |
| Lushington, Mrs. C. H. | 60 | 0 | 0 |
| Lushington, Mrs. E. | 60 | 0 | 0 |
| MacFarlane, Mrs. A. | 13 | 0 | 0 |
| Macpherson, Dr. H. | 68 | 0 | 0 |
| Macrae, Mrs. A. | 10 | 0 | 0 |
| Mactier, Dr. W. | 40 | 0 | 0 |
| Malet, Mrs. O. W. | 20 | 0 | 0 |
| Manuk, Mrs. | 20 | 0 | 0 |
| Martin,—Esq. thro' Archdeacon Pratt. | 25 | 0 | 0 |
| Money, Mrs. W. | 20 | 0 | 0 |
| Monteath, Mrs. | 20 | 0 | 0 |
| Montgomery, Sir Robert, | 100 | 0 | 0 |
| Morgan, Mrs. Walter. | 25 | 0 | 0 |
| Moule, Rev. A. | 20 | 0 | 0 |
| Moultrie, Mrs. | 30 | 0 | 0 |
| Napier, Lady, | 50 | 0 | 0 |
| Palmer, Mrs. J. C. | 30 | 0 | 0 |
| Palmer, Mrs. George, | 30 | 0 | 0 |
| Palmer, E. Esq. | 20 | 0 | 0 |
| Palmer, R. S. Esq. | 32 | 0 | 0 |
| Palmer, Mrs. Dr. Charles, | 10 | 0 | 0 |
| Parsons, Mrs. Genl. | 50 | 0 | 0 |
| Payne, Dr. A. | 20 | 0 | 0 |
| Peachy, Mrs. | 8 | 0 | 0 |
| Pepper, G. Esq. | 100 | 0 | 0 |
| Petrie, Miss. | 10 | 0 | 0 |
| Pratt, Rev. H. | 32 | 0 | 0 |
| Pughe, Mrs. | 32 | 0 | 0 |
| Purdon, Mrs. | 12 | 0 | 0 |
| Ritchie, Mrs. | 20 | 0 | 0 |
| Roberts, Mrs. C. | 10 | 0 | 0 |
| Robinson, T. M. Esq. | 50 | 0 | 0 |
| Rose, Sir. Hugh. | 100 | 0 | 0 |
| Russell, Major. | 50 | 0 | 0 |
| Sandeman, Mrs. | 38 | 0 | 0 |
| Schalch, Mrs. Vernon, | 50 | 0 | 0 |
| Scott, Col. E. | 50 | 0 | 0 |
| Seton-Karr, Mrs. | 16 | 0 | 0 |
| Shekleton, Mrs. | 20 | 0 | 0 |
| Smith, H. Scott. Esq. | 70 | 0 | 0 |
| Smith, Mrs. Baird. | 20 | 0 | 0 |
| Smith, Mrs. Bullen. | 20 | 0 | 0 |
| Stack, Mrs. | 50 | 0 | 0 |
| Stainforth, Mrs. | 55 | 0 | 0 |
| Stewart, Mrs. W. C. | 60 | 0 | 0 |
| Stewart, Mrs. Patrick, | 5 | 0 | 0 |
| Taylor, Mrs. Pierce. | 60 | 0 | 0 |
| Thomson, Col. W. B. | 12 | 0 | 0 |
| Thomson, Mrs. T. | 10 | 0 | 0 |
| Thompson, Mrs. Rivers. | 60 | 0 | 0 |
| Trevor, E. T. Esq. | 50 | 0 | 0 |
| Turnbull, Mrs. George. | 16 | 0 | 0 |
| Walker, Mrs. | 24 | 0 | 0 |
| Wauchope, Mrs. | 60 | 0 | 0 |
| Well, Mrs. thro' Mrs. Haddon, | 16 | 0 | 0 |
| Wells, Sir Mordaunt, | 600 | 0 | 0 |
| Woodrow, Mrs. | 20 | 0 | 0 |
| Wray, G. O. Esq. | 16 | 0 | 0 |
| Young, Mrs. A. R. | 60 | 0 | 0 |

*Calcutta Free School Press.*

# SANITARY REPORT OF THE EUROPEAN FEMALE ORPHAN ASYLUM FOR THE PAST SIX YEARS, COMMENCING JANUARY, 1863.

BY JOSEPH FAYRER, M. D., C. S. I.

DURING the past six years, the monthly average of each year of the number of girls in the school has been, in round numbers—

In 1863—68
1864—70
1865—67
1866—66
1867—59
1868—60

The ages vary from one to eighteen years, the great proportion being between the ages of 5 and 16.

The sanitary history of this Institution is as gratifying as it has been during previous years, and is not less remarkable for the absence of disease, than for the generally vigorous state of health enjoyed by the inmates.

The abstracts of admission into hospital show that there has been great immunity from epidemic disease of any severity, and the very small mortality, as well as the small amount of sickness, prove that the European child under proper hygienic conditions, and careful physical training, may live and thrive in the plains of Bengal almost as well as in its native country.

It is not merely in the absence of any serious disease and the low death-rate that this is manifested, but in the vigorous healthy appearance of the children generally.

This was remarkably noticeable at the last yearly distribution of prizes, when the girls were assembled for the purpose, and it is no exaggeration to say that their appearance on that occasion would have borne favorable contrast with that of the girls of any similar Institution in Europe.

For this very satisfactory state of matters, the thanks of all interested in the Institution are due to the very careful and judicious management of the Ladies Committee, who have supervised the Institution, and especially to the Lady Superintendents who have under their directions so vigilantly watched over the moral, mental, and physical education of their charges. It is impossible too highly to estimate the advantages of such management, and I am glad to have this opportunity of recording my impressions on the subject and of declaring how much the high state of efficiency of the school, as well as the continued good health of its inmates, is due to the unwearied exertions and admirable administration of the past and present Lady Superintendents.

There are several points of interest in the sanitary history of this school that might be considered, but I shall only advert to those which are most appropriate to this brief report, and which appear most interesting to those to whom it is addressed, the friends and guardians of the children, and the supporters of the school.

And first I would remark on the absence of any severe form of epidemic disease. In looking over the monthly abstracts of admissions into hospital, I find that there has not been a single case of cholera; and that the only death from dysentery, which is the disease peculiarly to be dreaded in Calcutta, was that of——aged 5 years, which occurred in 1863, and this was rather a case of dysenteric diarrhœa in a naturally delicate child.

With reference to the class of disorders peculiar to early female life, I may say on this head that nothing could be more favourable, and that although there be certain indications of the influence of climate in either accelerating or modifying the usual functions, the state of health of the girls is, in this respect, most satisfactory.

The disease returned as measles was a rubeoloid fever of a mild form, slightly contagious, shewing little tendency to spread which has occurred from time to time, and has not been followed in any case by those grave sequelæ that so frequently result from measles in Europe.

Two cases of modified small-pox only are recorded, and there has never been any tendency in the disease to spread.

The children have all been protected by vaccination, which has succeeded admirably in all upon whom it had not previously been tried.

A few cases of genuine typhoid or enteric fever have occurred, one of which proved fatal in 1868, the case of——aged 5. The other forms of fever have been of the simple continued form, or mild manifestations of the influence of malaria.

The same may be said of the cases of convulsions, a few of which have occurred.

Hooping Cough has been altogether absent.

A few cases of skin disease, but those of a simple and tractable kind, have occurred.

As might be expected among so large a number of children, strumous disease has not been altogether absent, and one death from pyæmia in the Medical College hospital after amputation of the thigh, the other thigh having been previously amputated a year before, for extensive disease of the knee joint; and another from marasmus, the result of strumous disease of the mesenteric glands, have been recorded.

Of acute inflammatory disease, whether of the head, chest, or abdomen, there has been almost none.

Diseases of the liver or spleen, whether from malaria or other causes, have been also singularly few, if not altogether absent.

Pulmonary and Bronchial complaints have been very few and slight, with the exception of one case of capillary bronchitis with atalectasis in a child aged 14 months, ~~that~~ came in ill and died a week after admission; and a few slight catarrhal attacks involving the bronchial tubes, none are recorded. Indeed the mildness of disease, and the absence of those forms of it, with few exceptions, that characterize the Indian climate, has been remarkable. The number of children under 2 years of age has been small, and therefore it is not to be expected that the diseases of first dentition should occupy a marked place; indeed they have been almost altogether absent. The cases of convulsions recorded were due more probably to either centric irritation, or the influence of malaria on the nerve centres. But the evidences of malaria have been, on the whole I am bound to say, very slight, as may be readily seen in the fresh color and red lips of the children.

I would here remark in proof of the improved sanitary condition of the girls, that lateral spinal curvature, of which ten years ago there were several cases, has now disappeared from the school.

There can be no doubt that the very satisfactory state of health enjoyed by these children is mainly due to the excellent hygienic arrangements, and the moral as well as physical discipline, under which they live.

They inhabit a well-built, ventilated, and commodious house, surrounded by a large open space of garden or ground, in which they find amusement and healthy recreation in gardening, or play in the open air. The nature of their occupations is such as to conduce to their moral, alike with their physical, well-being. They have sufficient mental labor to develop without fatiguing their intellects, and of a character suited to the sphere of life in which they are intended to live. With this is combined methodic occupation of a fitting character, regular hours, a good but plain and nutritious diet; and all that could tend to injure the health from constant or overwork of any special kind, is strictly avoided.

The following statement of their daily occupations, diet, and recreation by the Lady Superintendent explains how the time is passed, and it is a system that might well be followed by other educational establishments here and elsewhere.

The conditions of a healthy mind in a healthy body, are here all existent, and the results shew how materially a just combination of mental and physical training will, when supported by example in those whose duty it is to teach, conduce even in the climate of Bengal, to ensure a high standard of moral and physical health.

There are some points upon which I would note, that if the means of the Institution admitted, improvements might be made. Increased sleeping accommodation is the most important, for at present they are certainly somewhat overcrowded; and were it not for the greatest attention being paid to the ventilation of the dormitories, this crowding would produce its usual effects.

The verandah in the front of the house should also be covered in with sun-shades, and if possible a covered playground should be provided for the children for exercise and play in the hot weather. These, however important, I do not insist on as absolutely essential at present, but in the event of the acquisition of the means, through the liberality of any of the admirers of this truly valuable Institution, I do not think the money could be applied to a better purpose.

In reference to the question of growth and development of the European child brought up and educated in Bengal, I may give the following illustration from the average measurements of five girls at 16 years of age which was—

Height, 5·4½ inches
Weight, 7 stone 11 lbs.
Girth of chest, 34·7 inches.
Girth of Hip, 35·7 inches.

A stature and weight which would probably not be much exceeded in Europe.

Appended are the Monthly Abstracts of Disease for the past six years, and the Yearly Abstract of the numbers treated, also the Lady Superintendent's Memo. of the Diet and Occupations of the children.

## MONTHLY ABSTRACT FOR JANUARY, 1863.

| Diseases. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | Remarks. |
|---|---|---|---|---|---|---|---|---|
| Dysenteria ... | 1 | 0 | 1 | 0 | 1 | 0 | 0 | |
| Varicella ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Vaccinia ... | 0 | 2 | 2 | 2 | 0 | 0 | 2 | |
| Furunculus ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month... | 1 | 4 | 5 | 3 | 1 | 1 | 4 | |
| FEBRUARY, 1863. | | | | | | | | |
| Varicella ... | 1 | 3 | 4 | 4 | 0 | 0 | 4 | |
| Tumor ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Catarrh ... | 0 | 2 | 2 | 1 | 0 | 1 | 2 | |
| Febricula ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Rubeoloid ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month... | 1 | 8 | 9 | 7 | 0 | 2 | 9 | |
| MARCH, 1863. | | | | | | | | |
| Rubeoloid ... | 1 | 3 | 4 | 4 | 0 | 0 | 4 | |
| Catarrh ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Diarrhœa ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month... | 2 | 4 | 6 | 5 | 0 | 1 | 6 | |

## APRIL, 1863.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Diarrhœa ... | 1 | 1 | 2 | 2 | 0 | 0 | 2 | |
| Rubeoloid ... | 0 | 5 | 5 | 5 | 0 | 0 | 5 | |
| Furunculus ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Apthæ ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month... | 1 | 8 | 9 | 8 | 0 | 1 | 9 | |

## MAY, 1863.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Vulnus Capitis ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Diarrhœa ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Adenitis ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Ædema ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Icterus ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Dyspepsia ... | 0 | 7 | 7 | 7 | 0 | 0 | 7 | |
| Furunculus ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Conjunctivitis ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month... | 0 | 14 | 14 | 14 | 0 | 0 | 14 | |

## JUNE, 1863.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Dyspepsia ... | 0 | 2 | 2 | 2 | 0 | 0 | 2 | |
| Torticollis ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month... | 0 | 3 | 3 | 3 | 0 | 0 | 3 | |
| **JULY, 1863.** | | | | | | | | |
| Diarrhœa ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Catarrh ... | 0 | 10 | 10 | 10 | 0 | 0 | 10 | |
| Total in Month... | 0 | 11 | 11 | 11 | 0 | 0 | 11 | |
| **AUGUST, 1863.** | | | | | | | | |
| Febris, c. c. ... | 0 | 2 | 2 | 2 | 0 | 0 | 2 | |
| Febricula ... | 0 | 2 | 2 | 2 | 0 | 0 | 2 | |
| Dyspepsia ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month... | 0 | 5 | 5 | 5 | 0 | 0 | 5 | |

## SEPTEMBER, 1863.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Febris, c. c. ... | 0 | 10 | 10 | 6 | 0 | 4 | 10 | |
| Lumbrici ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Diarrhœa ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month ... | 0 | 12 | 12 | 8 | 0 | 4 | 12 | |
| **OCTOBER, 1863.** | | | | | | | | |
| Febris, c. c. ... | 4 | 7 | 11 | 11 | 0 | 0 | 11 | |
| Icterus ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Convulsio ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Dyspepsia ... | 0 | 2 | 2 | 2 | 0 | 0 | 2 | |
| Pleurodynia ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Diarrhœa ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total in Month ... | 4 | 12 | 16 | 14 | 0 | 2 | 16 | |

## NOVEMBER, 1863.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Convulsions ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Pleurodynia ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Dysenteria ... | 0 | 2 | 2 | 1 | 0 | 1 | 2 | |
| Dyspepsia ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Febricula ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month ... | 2 | 4 | 6 | 4 | 0 | 2 | 6 | |
| **DECEMBER 1863.** | | | | | | | | |
| Dyspepsia ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Dysenteria ... | 1 | 1 | 2 | 2 | 0 | 0 | 2 | |
| Catarrh ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month ... | 2 | 2 | 4 | 4 | 0 | 0 | 4 | |
| **JANUARY, 1864.** | | | | | | | | |
| Convulsions ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Dysenteria ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Herpes ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month ... | 0 | 3 | 3 | 1 | 0 | 2 | 3 | |

## FEBRUARY, 1864.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Convulsio et Dysenteria | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Herpes ... | 1 | 17 | 18 | 9 | 0 | 9 | 18 | |
| Total in Month... | 2 | 17 | 19 | 10 | 0 | 9 | 19 | |

## MARCH, 1864.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Herpes ... | 9 | 13 | 22 | 12 | 0 | 10 | 22 | |
| Cynanche ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Diarrhœa ... | 0 | 2 | 2 | 2 | 0 | 0 | 2 | |
| Dyspepsia ... | 0 | 1 | 1 | 1 | 0 | 0 | 0 | |
| Febris, c. c. ... | 0 | 1 | 1 | 1 | 0 | 0 | 0 | |
| Cephalalgia ... | 0 | 1 | 1 | 1 | 0 | 0 | 0 | |
| Total in Month... | 9 | 19 | 28 | 18 | 0 | 10 | 28 | |

## APRIL, 1864.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Herpes ... | 10 | 2 | 12 | 10 | 0 | 2 | 12 | |
| Gum-boils ... | 0 | 2 | 2 | 2 | 0 | 0 | 2 | |
| Curvature of Spine ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| „ | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month ... | 10 | 6 | 16 | 14 | 0 | 2 | 16 | |

## MAY, 1864.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Herpes ... | 2 | 0 | 2 | 2 | 0 | 0 | 2 | |
| Total in Month... | 2 | 0 | 2 | 2 | 0 | 0 | 2 | |

## JUNE, 1864.

No sickness of consequence.

## JULY, 1864.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Diarrhœa ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Dysenteria ... | 0 | 3 | 3 | 3 | 0 | 0 | 3 | |
| Total in Month... | 0 | 4 | 4 | 4 | 0 | 0 | 4 | |
| AUGUST, 1864. | | | | | | | | |
| Diarrhœa ... | 0 | 6 | 6 | 5 | 0 | 1 | 6 | |
| Total in Month... | 0 | 6 | 6 | 5 | 0 | 1 | 6 | |
| SEPTEMBER, 1864. | | | | | | | | |
| Diarrhœa ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| OCTOBER, 1864. | | | | | | | | |
| Tuberculosis Mesenterica | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |

## NOVEMBER, 1864.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Tuberculosis Mesenterica | 1 | 0 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month... | 1 | 0 | 1 | 0 | 0 | 1 | 1 | |
| **DECEMBER, 1864.** | | | | | | | | |
| Tuberculosis Mesenterica | 1 | 0 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month .. | 1 | 0 | 1 | 0 | 0 | 1 | 1 | |
| **JANUARY, 1865.** | | | | | | | | |
| Tuberculosis Mesenterica | 1 | 0 | 1 | 0 | 0 | 1 | 1 | |
| Herpes ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month... | 1 | 1 | 2 | 0 | 0 | 2 | 2 | |

## FEBRUARY, 1865.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Tuberculosis Mesenterica | 1 | 0 | 1 | 0 | 0 | 1 | 1 | |
| Herpes ... | 1 | 3 | 4 | 0 | 0 | 4 | 4 | |
| Febris ... | 0 | 2 | 2 | 2 | 0 | 0 | 2 | |
| Apthæ ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Operation on finger ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | Fingers congenitally united divided. |
| Total in Month . | 2 | 7 | 9 | 3 | 0 | 6 | 9 | |

## MARCH, 1865.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Tuberculosis Mesenterica | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Herpes ... | 4 | 1 | 5 | 4 | 0 | 1 | 5 | |
| Operation on finger ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Catarrh ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Varioloid ... | 0 | 2 | 2 | 2 | 0 | 0 | 2 | |
| Diarrhœa ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month... | 6 | 5 | 11 | 9 | 0 | 2 | 11 | |

## APRIL, 1865.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Herpes ... | 1 | 9 | 10 | 9 | 0 | 1 | 10 | |
| Diarrhœa ... | 1 | 0 | 1 | 0 | 0 | 1 | 1 | |
| Tooth Extracted ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month ... | 2 | 10 | 12 | 10 | 0 | 2 | 12 | |
| MAY, 1865. | | | | | | | | |
| Herpes ... | 1 | 1 | 2 | 2 | 0 | 0 | 2 | |
| Diarrhœa ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Febris ... | 0 | 2 | 2 | 2 | 0 | 0 | 2 | |
| Total in Month ... | 2 | 3 | 5 | 5 | 0 | 0 | 5 | |
| JUNE, 1865. | | | | | | | | |
| Febris ... | 0 | 6 | 6 | 0 | 0 | 6 | 6 | |
| Furunculus .. | 0 | 2 | 2 | 0 | 0 | 2 | 2 | |
| Stomatitis ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month ... | 0 | 9 | 9 | 0 | 0 | 9 | 9 | |

## JULY, 1865.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Febris ... | 6 | 2 | 8 | 8 | 0 | 0 | 8 | |
| Furunculus ... | 2 | 4 | 6 | 5 | 0 | 1 | 6 | |
| Stomatitis ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month ... | 9 | 6 | 15 | 14 | 0 | 1 | 15 | |
| AUGUST, 1865. | | | | | | | | |
| Furunculus ... | 1 | 1 | 2 | 2 | 0 | 0 | 2 | |
| Diarrhœa ... | 0 | 7 | 7 | 3 | 0 | 4 | 7 | |
| Dysentery ... | 0 | 3 | 3 | 2 | 0 | 1 | 3 | |
| Total in Month ... | 1 | 11 | 12 | 7 | 0 | 5 | 12 | |
| SEPTEMBER, 1865. | | | | | | | | |
| Diarrhœa ... | 4 | 2 | 6 | 6 | 0 | 0 | 6 | |
| Dysenteria ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Furunculus ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Stomatitis ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Conjunctivitis ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month ... | 5 | 5 | 10 | 10 | 0 | 0 | 10 | |

## OCTOBER, 1865.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Conjunctivitis ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Furunculus ... | 0 | 5 | 5 | 5 | 0 | 0 | 5 | |
| Dysenteria ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Stomatitis ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Marasmus ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month ... | 0 | 9 | 9 | 7 | 0 | 2 | 9 | |

## NOVEMBER, 1865.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Dysentery ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Marasmus ... | 1 | 0 | 1 | 0 | 0 | 1 | 1 | |
| Febris ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Febricula ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Furunculus ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Conjunctivitis ... | 0 | 1 | 1 | 0 | 0 | 0 | 1 | |
| Herpes ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Diarrhœa ... | 0 | 2 | 2 | 1 | 0 | 1 | 2 | |
| Total in Month ... | 2 | 7 | 9 | 6 | 0 | 2 | 9 | |

## DECEMBER, 1865.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Marasmus ... | 1 | 0 | 1 | 0 | 1 | 0 | 1 | |
| Diarrhœa ... | 1 | 3 | 4 | 4 | 0 | 0 | 4 | |
| Fever ... | 0 | 3 | 3 | 3 | 0 | 0 | 3 | |
| Total in Month ... | 2 | 6 | 8 | 7 | 1 | 0 | 8 | |
| **JANUARY, 1866.** | | | | | | | | |
| No sickness this month. | | | | | | | | |
| **FEBRUARY, 1866.** | | | | | | | | |
| Abscess ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Febris ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Marasmus ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | Left for England. |
| Total in Month ... | 0 | 3 | 3 | 2 | 0 | 1 | 3 | |

## MARCH, 1866.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged. cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Diarrhœa ... | 0 | 4 | 4 | 4 | 0 | 0 | 4 | |
| Febris ... | 0 | 3 | 3 | 3 | 0 | 0 | 3 | Simple fever of a few days' duration. |
| Ulcus ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month ... | 0 | 8 | 8 | 7 | 0 | 1 | 8 | |

## APRIL, 1866.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged. cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Ulcus ... | 1 | 0 | 1 | 0 | 0 | 1 | 1 | |
| Diarrhœa ... | 0 | 3 | 3 | 3 | 0 | 0 | 3 | |
| Febris ... | 0 | 2 | 2 | 1 | 0 | 1 | 2 | Simple fever of a few days' duration. |
| Total in Month ... | 1 | 5 | 6 | 4 | 0 | 2 | 6 | |

## MAY, 1866.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged. cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Ulcus ... | 1 | 0 | 1 | 0 | 0 | 1 | 1 | |
| Febris ... | 1 | 2 | 3 | 1 | 0 | 2 | 3 | 1 Case Typhoid. |
| Diarrhœa ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Dysenteria ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month ... | 2 | 4 | 6 | 2 | 0 | 4 | 6 | |

JUNE, 1866.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Febris Typhoid ... | 1 | 1 | 2 | 0 | 0 | 2 | 2 | |
| Febris, c. c. ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Dysenteria ... | 1 | 0 | 1 | 0 | 0 | 1 | 1 | |
| Diarrhœa ... | 0 | 2 | 2 | 1 | 0 | 1 | 2 | |
| Total in Month ... | 3 | 3 | 6 | 2 | 0 | 4 | 6 | |
| JULY, 1866. | | | | | | | | |
| Febris Typhoid ... | 2 | 0 | 2 | 1 | 0 | 1 | 2 | |
| Dysenteria ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Febris, c. c. ... | 0 | 3 | 3 | 2 | 0 | 1 | 3 | |
| Diarrhœa ... | 1 | 17 | 18 | 18 | 0 | 0 | 18 | |
| Total in Month ... | 4 | 20 | 24 | 22 | 0 | 2 | 24 | |
| AUGUST, 1866. | | | | | | | | |
| Febris Typhoid ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Febris, c. c. ... | 1 | 3 | 4 | 3 | 0 | 1 | 4 | |
| Diarrhœa ... | 0 | 13 | 13 | 11 | 0 | 2 | 13 | |
| Total in Month ... | 2 | 16 | 18 | 15 | 0 | 3 | 18 | |

SEPTEMBER, 1866.

| DISEASES. | | Remaining | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|---|
| Febris, C. C. | ... | 1 | 2 | 3 | 3 | 0 | 0 | 3 | |
| Diarrhœa | ... | 2 | 0 | 2 | 2 | 0 | 0 | 2 | |
| Total in Month | ... | 3 | 2 | 5 | 5 | 0 | 0 | 5 | |
| OCTOBER, 1866. | | | | | | | | | |
| Diarrhœa | ... | 0 | 2 | 2 | 2 | 0 | 0 | 2 | |
| Furunculi | ... | 0 | 3 | 3 | 3 | 0 | 0 | 3 | |
| Febris | ... | 0 | 2 | 2 | 2 | 0 | 0 | 2 | |
| Dysenteria | ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month | ... | 0 | 8 | 8 | 7 | 0 | 1 | 8 | |
| NOVEMBER, 1866. | | | | | | | | | |
| Dysenteria | ... | 1 | 0 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month | ... | 1 | 0 | 1 | 0 | 0 | 1 | 1 | |

## DECEMBER, 1866.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Dysenteria ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Febris ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month ... | 1 | 1 | 2 | 2 | 0 | 0 | 2 | |

## JANUARY, 1867.

No sickness this month.

## FEBRUARY, 1867.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Febris ... | 0 | 8 | 8 | 8 | 0 | 0 | 8 | |
| Total in Month ... | 0 | 8 | 8 | 8 | 0 | 0 | 8 | |

## MARCH, 1867.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Rubeola ... | 0 | 15 | 15 | 11 | 0 | 4 | 15 | H. D., died 7th March, in Medical College, of Pyæmia, after amputation of thigh. |
| Total in Month ... | 0 | 15 | 15 | 11 | 0 | 4 | 15 | |

## APRIL, 1867.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Rubeola ... | 4 | 5 | 9 | 8 | 0 | 1 | 9 | |
| Total in Month ... | 4 | 5 | 9 | 8 | 0 | 1 | 9 | |
| **MAY, 1867.** | | | | | | | | |
| Rubeola ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Febris ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Furunculi ... | 0 | 3 | 3 | 2 | 0 | 1 | 3 | |
| Total in Month ... | 1 | 4 | 5 | 4 | 0 | 1 | 5 | |
| **JUNE, 1867.** | | | | | | | | |
| Furunculi ... | 1 | 3 | 4 | 4 | 0 | 0 | 4 | |
| Diarrhœa ... | 0 | 4 | 4 | 2 | 0 | 2 | 4 | |
| Anæmia ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month ... | 1 | 8 | 9 | 7 | 0 | 2 | 9 | |

## JULY, 1867.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Diarrhœa ... | 2 | 0 | 2 | 2 | 0 | 0 | 2 | |
| Febris ... | 0 | 4 | 4 | 4 | 0 | 0 | 4 | |
| Furunculi ... | 0 | 2 | 2 | 1 | 0 | 1 | 2 | |
| Total in Month... | 2 | 6 | 8 | 7 | 0 | 1 | 8 | |
| AUGUST, 1867. | | | | | | | | |
| Furunculi ... | 1 | 1 | 2 | 1 | 0 | 0 | 2 | |
| Debilitas ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month... | 1 | 2 | 3 | 2 | 0 | 0 | 3 | |
| SEPTEMBER, 1867. | | | | | | | | |
| Scabies ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |

## OCTOBER, 1867.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Scabies ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Subluxatio .. | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Diarrhœa ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month... | 1 | 2 | 3 | 3 | 0 | 0 | 3 | |

## NOVEMBER, 1867.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Catarrh .. | 0 | 6 | 6 | 6 | 0 | 0 | 6 | |
| Dyspepsia ... | 0 | 2 | 2 | 2 | 0 | 0 | 2 | |
| Febris ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month... | 0 | 9 | 9 | 9 | 0 | 0 | 9 | |

## DECEMBER, 1867.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Scabies ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |

## JANUARY, 1868.

| DISEASES. | Remaining | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Scabies ... | 1 | 1 | 2 | 2 | 0 | 0 | 2 | |
| Febris ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Cynanche ... | 0 | 2 | 2 | 2 | 0 | 0 | 2 | |
| Adenitis ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month ... | 1 | 5 | 6 | 5 | 0 | 1 | 6 | |
| FEBRUARY, 1868. | | | | | | | | |
| Adenitis ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Febris ... | 0 | 2 | 2 | 2 | 0 | 0 | 2 | |
| Diarrhœa ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month ... | 1 | 3 | 4 | 3 | 0 | 1 | 4 | |
| MARCH, 1868. | | | | | | | | |
| Diarrhœa ... | 1 | 1 | 2 | 2 | 0 | 0 | 2 | |
| Febris ... | 0 | 3 | 3 | 3 | 0 | 0 | 3 | |
| Furunculi .. | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Catarrh ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month ... | 1 | 6 | 7 | 6 | 0 | 1 | 7 | |

## APRIL, 1868.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Catarrh ... | 1 | 1 | 2 | 2 | 0 | 0 | 2 | |
| Total in Mouth ... | 1 | 1 | 2 | 2 | 0 | 0 | 2 | |

## MAY, 1868.

No sickness this month.

## JUNE, 1868.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Catarrh ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Ulcus ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Vulnus Capitis ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Debilitas ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month ... | 0 | 4 | 4 | 2 | 0 | 2 | 4 | |

## JULY, 1868.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Vulnus Capitis ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Debilitas ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Febris Typhoid .. | 0 | 1 | 1 | 0 | 1 | 0 | 1 | |
| Diarrhœa ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Furunculus ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month ... | 2 | 3 | 5 | 4 | 1 | 0 | 5 | |
| **AUGUST, 1868.** | | | | | | | | |
| Febris ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Furunculus ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Ulcus ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Abscess ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Sprained Ankle ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Vulnus Digiti ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Conjunctivitis ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Debilitas ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Diarrhœa ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month .. | 0 | 9 | 9 | 6 | 0 | 3 | 9 | |

SEPTEMBER, 1868.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Conjunctivitis ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Debilitas ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Diarrhœa ... | 1 | 1 | 2 | 2 | 0 | 0 | 2 | |
| Catarrh ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Œdema ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Sprained Ankle ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Febris ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Total in Month ... | 3 | 5 | 8 | 7 | 0 | 1 | 8 | |
| OCTOBER, 1868. | | | | | | | | |
| Febris ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| NOVEMBER, 1868. | | | | | | | | |
| Bronchitis ... | 0 | 1 | 1 | 0 | 1 | 0 | 1 | |
| Pneumonia ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | |
| Furunculus ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month .. | 0 | 3 | 3 | 1 | 1 | 1 | 3 | |

## DECEMBER, 1868.

| DISEASES. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| Pneumonia ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | |
| Dysenteria ... | 0 | 1 | 1 | 1 | 0 | 0 | 1 | |
| Total in Month ... | 1 | 1 | 2 | 2 | 0 | 0 | 2 | |

## ABSTRACT OF SICK FOR THE YEAR 1863.

| MONTHS. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. Girls in School. |
|---|---|---|---|---|---|---|---|---|
| January ... | 1 | 4 | 5 | 3 | 1 | 1 | 5 | |
| February ... | 1 | 8 | 9 | 7 | 0 | 2 | 9 | |
| March ... | 2 | 4 | 6 | 5 | 0 | 1 | 6 | |
| April ... | 1 | 8 | 9 | 8 | 0 | 1 | 9 | |
| May ... | 0 | 18 | 18 | 18 | 0 | 0 | 18 | |
| June ... | 0 | 3 | 3 | 3 | 0 | 0 | 3 | |
| July ... | 0 | 11 | 11 | 11 | 0 | 0 | 11 | |
| August .. | 0 | 5 | 5 | 5 | 0 | 0 | 5 | |
| September. | 0 | 12 | 12 | 8 | 0 | 4 | 12 | |
| October ... | 4 | 12 | 16 | 14 | 0 | 2 | 16 | |
| November.. | 2 | 4 | 6 | 4 | 0 | 2 | 6 | 66 |
| December.. | 2 | 2 | 4 | 4 | 0 | 0 | 4 | 70 |
| Total ... | 13 | 91 | 104 | 90 | 1 | 13 | 104 | 68 Daily average. |
| 1864. | | | | | | | | |
| January ... | 0 | 3 | 3 | 1 | 0 | 2 | 3 | 37 |
| February ... | 2 | 17 | 19 | 10 | 0 | 9 | 19 | 71 |
| March ... | 9 | 19 | 28 | 18 | 0 | 10 | 28 | 73 |
| April ... | 10 | 6 | 16 | 14 | 0 | 2 | 16 | 73 |
| May ... | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 73 |
| June ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 |
| July ... | 0 | 4 | 4 | 4 | 0 | 0 | 4 | 70 |
| August ... | 0 | 6 | 6 | 5 | 0 | 1 | 6 | 73 |
| September | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 72 |
| October ... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 73 |
| November | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 74 |
| December.. | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 73 |
| Total ... | 26 | 56 | 82 | 55 | 0 | 27 | 82 | 58 Daily average. |

## 1865.

| MONTHS. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS. Girls in School. |
|---|---|---|---|---|---|---|---|---|
| January ... | 1 | 1 | 2 | 0 | 0 | 2 | 2 | 56 |
| February . | 2 | 7 | 9 | 3 | 0 | 6 | 9 | 65 |
| March ... | 6 | 5 | 11 | 9 | 0 | 2 | 11 | 66 |
| April ... | 2 | 10 | 12 | 10 | 0 | 2 | 12 | 66 |
| May ... | 2 | 3 | 5 | 5 | 0 | 0 | 5 | 67 |
| June ... | 0 | 9 | 9 | 0 | 0 | 9 | 9 | 69 |
| July ... | 9 | 6 | 15 | 14 | 0 | 1 | 15 | 70 |
| August ... | 1 | 11 | 12 | 7 | 0 | 5 | 12 | 69 |
| September. | 5 | 5 | 10 | 10 | 0 | 0 | 10 | 69 |
| October ... | 0 | 9 | 9 | 7 | 0 | 2 | 9 | 70 |
| November.. | 2 | 7 | 9 | 6 | 0 | 2 | 9 | 70 |
| December.. | 2 | 6 | 8 | 7 | 1 | 0 | 8 | 69 |
| Total... | 32 | 78 | 111 | 78 | 1 | 31 | 111 | 67 Daily average. |

## 1866.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| January ... | No sickness this month. | | | | | | | |
| February .. | 0 | 3 | 3 | 3 | 0 | 0 | 3 | 63 |
| March ... | 0 | 8 | 8 | 7 | 0 | 1 | 8 | 63 |
| April ... | 1 | 5 | 6 | 4 | 0 | 2 | 6 | 61 |
| May ... | 2 | 4 | 6 | 2 | 0 | 3 | 6 | 61 |
| June ... | 3 | 3 | 6 | 2 | 0 | 4 | 6 | 63 |
| July ... | 4 | 20 | 24 | 22 | 0 | 2 | 24 | 63 |
| August ... | 2 | 16 | 18 | 15 | 0 | 3 | 18 | 63 |
| September. | 3 | 2 | 5 | 5 | 0 | 0 | 5 | 62 |
| October ... | 0 | 8 | 8 | 7 | 0 | 1 | 8 | 63 |
| November.. | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 61 |
| December.. | 1 | 1 | 2 | 2 | 0 | 0 | 2 | 61 |
| Total... | 17 | 70 | 87 | 69 | 0 | 17 | 87 | 61 Daily average. |

1867.

| MONTHS. | Remaining. | Admitted. | Total. | Discharged cured. | Died. | Remaining. | Total. | REMARKS.<br>Girls in School. |
|---|---|---|---|---|---|---|---|---|
| January ... | | | No sickness this month. | | | | | |
| February... | 0 | 8 | 8 | 8 | 0 | 0 | 8 | 58 |
| March ... | 0 | 15 | 15 | 11 | 0 | 4 | 15 | 58 |
| April ... | 4 | 5 | 9 | 8 | 0 | 1 | 9 | 57 |
| May ... | 1 | 4 | 5 | 4 | 0 | 1 | 5 | 57 |
| June ... | 1 | 8 | 9 | 7 | 0 | 2 | 9 | 60 |
| July ... | 2 | 6 | 8 | 7 | 0 | 1 | 8 | 60 |
| August ... | 1 | 2 | 3 | 3 | 0 | 0 | 3 | 59 |
| September. | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 59 |
| October ... | 1 | 2 | 3 | 3 | 0 | 0 | 3 | 58 |
| November.. | 0 | 9 | 9 | 9 | 0 | 0 | 9 | 58 |
| December... | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 58 |
| Total... | 10 | 61 | 71 | 60 | 0 | 11 | 71 | 59 Daily average. |

1868.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| January ... | 1 | 5 | 6 | 5 | 0 | 1 | 6 | 55 |
| February... | 1 | 3 | 4 | 3 | 0 | 1 | 4 | 59 |
| March ... | 1 | 6 | 7 | 6 | 0 | 1 | 7 | 59 |
| April ... | 1 | 1 | 2 | 2 | 0 | 0 | 2 | 61 |
| May ... | | | No sickness this month. | | | | | 61 |
| June ... | 0 | 4 | 4 | 2 | 0 | 2 | 4 | 61 |
| July ... | 2 | 3 | 5 | 4 | 1 | 0 | 5 | 61 |
| August ... | 0 | 9 | 9 | 6 | 0 | 3 | 9 | 60 |
| September. | 3 | 5 | 8 | 7 | 0 | 1 | 8 | 61 |
| October ... | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 61 |
| November.. | 0 | 3 | 3 | 1 | 1 | 1 | 3 | 62 |
| December.. | 1 | 1 | 2 | 2 | 0 | 0 | 2 | 63 |
| Total... | 11 | 40 | 51 | 39 | 2 | 10 | 51 | 60 Daily average. |

## MEMO. BY LADY SUPERINTENDENT.

DIET :

Three regular meals in the day and bread early in the morning.

Breakfast ½ past 9. Bread and milk.

Dinner ½ past 2. Meat every day for Girls above 12, and three times a week for those under. Dhall and rice, &c. Fruit three days in the week.

During last year the meat was plainly cooked instead of curried, and I think the Children have benefited by it.

Supper ½ past 7. Bread and milk. The milk is pure—no water with it.

HABITS :

All through the year the children rise at 5 A. M., bathe in cold water, and then take exercise in the compound.

OCCUPATION :

During the Cold Season, school commences at 7, and in the Hot Weather, at 6 A. M.

Five hours of regular school and one of study (preparing Lessons) through the day.

During the hours of recreation skipping and active play is encouraged, and, as a rule, the children are as active and fond of a good romp as children in England. Indoor exercise consists of cleaning the house which is all done by the girls.

Calisthenic exercises every morning.

The following Table shows the ages at which each of twenty-seven girls commenced to menstruate. These girls are all of pure European lineage, such being a condition of their admission into the Asylum. It appears that seventeen were born in India, two in Ceylon, six in Europe, one in Australia, and one whose birth-place is not known. The earliest age at which the catamenia appeared was at twelve years and two months in a girl born in India; the latest at sixteen years and four months in the case of a delicate strumous girl who died after amputation in the Medical College hospital of pyæmia. She was also born in India.

The next latest was in a girl born in England in whom it commenced at fifteen years and eight months. Of the seventeen girls born in India the catamenia commenced in two between twelve and thirteen; in five between thirteen and fourteen; in eight between fourteen and fifteen; in one between fifteen and sixteen; and in one between sixteen and seventeen.

Of the six born in Europe, the catamenia commenced in one between twelve and thirteen; in one between thirteen and fourteen; in two between fourteen and fifteen; and in two between fifteen and sixteen.

Of the two born in Ceylon, it commenced in both between thirteen and fourteen. One in Australia, between fifteen and sixteen; and the one whose birth-place was unknown between twelve and thirteen.

Thus of the whole number—

Four commenced between twelve and thirteen years of age.
Eight ,, ,, thirteen and fourteen ,, ,,
Nine ,, ,, fourteen and fifteen ,, ,,
Five ,, ,, fifteen and sixteen ,, ,,
One ,, ,, sixteen and seventeen ,, ,,

The column of remarks in the Table shows how the functions were performed subsequently.

This is interesting as showing how far birth, residence, or physical and moral training under the most favorable circumstances affect the European female child born and brought up in India.

I have been acquainted with these girls since they were young children, and the impression I have formed, is, that they are more precocious both in physical and mental development than girls of the same age would be in Europe. They are most carefully educated, and, as the Report shows, their physical as well as moral training is most sedulously guarded from aught that could prejudice or injure either. But the stimulating effects of an almost tropical climate assert their influence; and it is evident that the girl of 16 or 17 is three or four years in advance of a girl of that age in a European climate. It is remarkable how few deviations have occurred from the natural and regular performance in the menstrual functions in these girls. As a rule it occurs regularly and without trouble, and it is most unusual for me to have any complaint made on this score.

In connection, though perhaps remotely with this subject, I would note the occasional occurrence among the girls of a swelling of the lower extremities evidently nearly allied to the elephantoid growth seen in the limbs of the Natives of Bengal—a bucnemia. It is manifestly a steady and ~~pointed~~ [illegible] enlargement of one leg, mostly about the ankle and leg, but extending slightly up the thigh itself. If there be any change in the condition, it occurs at the menstrual period, when the limb is somewhat larger than at other times. The swelling is firm, not œdematous and very like elephantiasis, except that it is not attended with either a periodic pain or excitement in the part, but is of very slow and steady growth. One of the ~~first~~ girls, aged 17, now in the school, is affected by it, and the left ankle is more than an inch greater in circumference than the right, and the swelling gradually extends to the thigh, while at the thigh it is somewhat larger than the other. There is no pain and very little inconvenience, except that which comes from the increased size.

I have not as yet succeeded in making any impression on it by medical treatment, and but very slight, only of a temporary nature by bandaging.

These cases, I am happy to say, are exceedingly rare, as during the fourteen years that I have known the school, there have been only two or three: they are very interesting and their pathology requires further investigation.

# ADDRESS IN SURGERY,

## BY J. FAYRER, M. D., F. R. S. E.,

TO THE ANNUAL MEETING OF THE

## B. B. BRITISH MEDICAL ASSOCIATION.

MARCH, 1868.

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MR. PRESIDENT AND GENTLEMEN,—A period of three years has elapsed since I had the honor of addressing an Annual Meeting of this Association ; on that occasion I took the opportunity, in alluding to the state of Surgery in Bengal, of especially soliciting your attention to certain pathological conditions arising in the medullary structure of the bones and productive of great mortality from blood poisoning among those who had suffered accident, or undergone surgical operation, in the Hospitals of this city. In connection with, and closely allied to, this subject, I described, what seemed to me, in some measure, to account for the prevalence of this form of disease, and I stated that vitiated health before admission into defectively constructed Hospitals was one great cause. This vitiated state of health I attribute to imperfect nutrition, to residence in a crowded and badly drained and ventilated city, and to that consequent general deterioration of constitutional vigour implied in a want of nervous energy, and the existence of a defective condition of the blood making apparatus, which in persons, under such circumstances, living in a damp tropical climate, and on the alluvial delta of a large river, is aggravated by the ever-present existence of that peculiar poison, or state, which, for want of a better name, we call malaria. I endeavoured to suggest how far, and to what extent, each of these causes may be held to be responsible for the occurrence of disease; and in speaking of the share in it, that may be due to nosocomial influences. I was careful to avoid what might appear to be animadversion on any one, for whatever the defects of the Calcutta Hospitals, and especially of that of the Medical College may be, it is to be borne in mind, that at the period when constructed, they were probably all that the Sanitary Science of the time considered necessary, and that any condemnation now pronounced must, on similar grounds, apply to most of the great European Hospitals.

The experience and improved knowledge of the last fifteen years have so changed the pre-existing views on these subjects, and have so entirely revolutionized the ideas of Hospital construction, that it is no reflection on any one, but simply a matter of duty, to point out defects where we find them, and to profit in all respects by the errors and experience of the past. During the last three years, the Medical College Hospital and its defects have been much discussed, and a Committee appointed by Government has thoroughly investigated the question, reported and made suggestions for alteration and improvement. The Committee consisted of Medical men, Civilians, Engineers, Merchants, and independent gentlemen, including a member of the native community, so that all interests were represented; and after careful investigation and comparison, and after taking evidence from the Medical Officers of the Hospital, they have confirmed the unfavourable report that brought about the nomination of the Committee. It is a matter of regret that the eminent Physician to whom the Hospital owes so much for its very existence, was not in India at the time these matters were under consideration, to have added the weight of that great and scientific experience, which has so much benefited other departments of the public service, to the deliberations and suggestions of the Committee; for I feel certain that no one would more willingly than Dr. Mouat have contributed to the subject all the advantages of the increased practical and scientific knowledge of late years.

The recommendations of the Committee have not as yet been all carried into effect, though, I trust, they shortly will be ; but one, and perhaps the most important change in the internal arrangements of the Hospital had already, at the instance of the Medical Officers, been carried out—the reduction of the number of beds from 25 to 16 in each ward, and this has been followed by undoubtedly good results, as I propose to shew.

The reduction of the number of beds in the wards of a large Hospital from 25 to 16 in each, *i. e.*, about 88 in all, is, in a great city ill-provided like Calcutta with accommodation for the sick, a matter of serious importance, and not to be undertaken without due consideration and assurance of its necessity. That such was the case, and that the change was needed, I am quite satisfied, and feel sure that the results have already been such as not only to justify, but to prove the necessity for the change.

It is to be noted that, although the cubic space, even before the change was considerable and perhaps so far equal to what is now considered to be sufficient, the superficial area was much below the ordinary requirements, owing to the disproportion between the height and the length and breadth of the wards. It is an axiom in Hospital hygiene that a certain minimum proportion of cubic space is required for a sick European soldier, but it is no less one of its canons that he must have a certain proportion of superficial space, and that you may not increase the one at the expense of the other. Height is a great advantage in a hot climate, but it must not be gained at a sacrifice of superficial area.

Taking the average of the ordinary sized wards, I find from a table furnished to me by Mr. Bouser, the Purveyor of the Hospital, that, when we admitted 25 into one ward, each patient had an average of 61 superficial, and 1,530 cubic feet of space ; and since we reduced the number from 25 to 16, that each patient has 95 superficial and 2,391 cubic feet of space ; now it has been laid down that each European in this country is to have in Hospital 120 superficial feet, 10 feet of wall space, and 2,400 cubic feet ; whilst each native shall have 99 superficial feet, 9 of wall space, and 1,584 cubic space, so that, taking the actual average of the wards, the patients therein accommodated, are still, notwithstanding the reduction, rather under than over the regulation allowance.

When, therefore, the question of the propriety of reduction of our numbers, in view of the limited extent of Hospital accommodation in Calcutta is raised, as it has been, by the Municipal authorities, the answer is clear, that it is better to secure the welfare of 16 than endanger 25 ; nor is this a mere theoretical or imaginary notion, it is a simple practical truth, and will stand the test of enquiry. Now I would not have you suppose that I mean that contracted space alone is inevitably to be followed by evil results, far from it, I am willing to admit that the ideal is seldom attained, that we must frequently depart from, rarely expect to realize it, and yet we may have fair results ; but I am not prepared to say so much in the case of a Hospital, whose other faults of construction are prominent, and where it consequently behoves us to do as much as we can to make up for, and not add to existing defects.

The recognised principles of Hospital construction are now so well known that I need hardly refer to them ; but as what I say is of general interest, and may be heard by others than medical men, I would briefly remark that, though few and simple, they are essentially requisite to the well-being of the sick. I may also add in anticipation, that neither Hospital nor any other building in Calcutta that I know of, in any way fulfils these simple conditions: we know that it has been the fashion in years past to construct our great European Hospitals in one mass or block of building, capable of holding a large number of sick, often compressed into small space; and that in the fulfilment of this idea, no regard was had, because, indeed, none was considered necessary, to due segregation, isolation, or classification of disease. Some of these large edifices are plain, others ornate, many of them costly in the extreme, liberally endowed, and munificently found in all that was supposed to be necessary to comfort, as well as health; ventilation and cubic space, decoration of the walls and a cheerful aspect, with many other amenities that sympathy and kindness could dictate were not wanting; and as far as the hygienic knowledge of the time went, they were perfect; and if we criticise and find fault now, it must be done with all deference to the limited knowledge of our predecessors, and in the full consciousness that our ideas of to-day may 20 years hence be regarded as equally obsolete as theirs are now. But it is our plain and positive duty in such an important matter as the welfare of the sick, and in dealing with that very plastic element, the life, or rather, I should say, the death figure, to note the errors taught us by the experience of the past, and not only to point them out, irrespective of all considerations, but to apply our improved knowledge to the benefit of the present and the future. It seems to me that no duty is more imperative on Municipal, Provincial, or Imperial Government than that of making provision, on a liberal scale, for the inevitable sick. In any given population, a certain number must, at all times, be laid aside by sickness, and of the number, a certain proportion is as surely unable to provide for itself, and therefore becomes a responsible and inevitable charge on the rest of the community. The sanitary knowledge of the time indicates the best, the most economical, and, at the same time the most rational method of providing for their wants; a charge as important and serious as any that has to be sustained. Calcutta is, I fear, as badly prepared to meet its liabilities in this respect, as any other great city, and it is certain that such provision as it has, is, according to present views, of an imperfect nature. But it is gratifying to know that the subject is now attracting attention, and that the influence of Hospital construction and hygiene on the welfare of the sick, and especially on those in whom the Surgeon is most interested, is daily being more recognized ; new hospitals are constructed in compliance with the principles laid down as essential for the welfare of the sick, and in many cases such alterations as they were capable of, have been, or are being made, with the view of improving existing buildings. For much interesting matter connected with this subject, I would refer you to a most able report by Dr. Sutherland on the Hospitals and barracks of the United Kingdom, published in 1861. On a large scale too, it has been well tested by the Americans in the great campaigns which have recently terminated, and no one who has read the valuable report, styled Circular No. 6, Surgeon General's Office, War Department, Washington, 1865, can fail to have been struck with the great success attending their adoption of the new system of Hospital construction and administration in their Regimental and Field Hospitals.

The same principles, modified, are applicable in civil life ; and as they have to do with fixed and permanent institutions, all the more reason why they should be adopted. The great difficulty, no doubt, is expense, but this ought not, for a moment, to be allowed to stand in the way of the accomplishment of what is a most obvious duty, and the tendency to admit this argument is, I am happy to think, becoming more evident daily. With reference to the suggestions of the Committee that reported on the Medical College Hospital in February 1867, I may say that, like those of Dr. Sutherland, in the case of the European Hospitals, they had in view the improvement of the sanitary condition of the present Hospital, provided it should be deemed impossible to construct a new one; and I am glad to say that, after a year's delay, some part of the work has at last been commenced; though from the original defects of construction it is improbable that any very satisfactory or radical improvement can result from what may be done.

In a few words, the requisites of a good Hospital, according to present views, are the following, and it is beyond a doubt that all Hospitals, however large or small, should be constructed on this principle, that they should be multiples of what is laid down as the *ward unit*, viz., a simple chamber, capable of accommodating any number up to 25 patients in two rows, with from 1,500 to 2,500 cubic feet, and 90 to 120 superficial feet for each individual. It is essential, moreover, that these apartments should have cross ventilation, and that the walls be pierced with a sufficient number of windows and doors to admit of free egress and ingress of air. This ward must be built on well-drained and wholesome ground, and be protected by verandahs in hot, and warming apparatus in cold climates. Lavatories and latrines should be constructed outside, and the administration should be so arranged, that each ward may receive its due share of care and attention. Every Hospital, however large, should be a multiple of this unit, arranged in a variety of ways, V shaped, or echellon shaped, half moon, or star shaped, or in parallel pavillions, according to individual circumstances. All blocking or crowding together of sick into one apartment, however spacious, must be avoided; and in Surgical cases, especially after operation, the more perfect the isolation, the better. For the mode in which the principle has been applied in America, I might refer here to the report already mentioned, and in England, as I believe, it may be seen in the Herbert Hospital at Woolwich, in the Riboisierè* in Paris, in the Colonies, and I am happy to say almost everywhere (except in Calcutta) in India.

To quote from the writings of a scientific living Surgeon, Mr. S. Wells:—"Not only must communication of wards with each other be avoided, but there must be separate wards containing one, or at most two beds, for patients recently operated on, and in lying-in Hospitals for women recently confined, before we can hope to reduce mortality from the excessive to the unavoidable rate."

I have said that the diminution of the number of beds appear to have been followed by an improvement in the results of the Surgical cases, and partly to another cause, to which I shall request your attention presently, the improvement, may, I believe, be attributed. I have to thank Dr. Ewart, who has so ably administered the affairs of the Hospital during the absence of Dr. Chevers, for a return of the Surgical operations performed in the Hospital during the two years that preceded and the two years that succeeded the diminution in the beds, and from it I make out the fact that blood-poisoning diseases have decreased.

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* I believe that La Riboisierè has not proved so good a hospital as it was expected to be.

*Statement shewing the Diseases which have caused death after Surgical Operations and Injuries in the Medical College Hospital during the years* 1864, 1865, 1866, *and* 1867.

| BLOOD POISONING DISEASES. | | | | | | | | | | | | | OTHER DISEASES. | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year. | Total number of operations and injuries. | Pyæmia and Osteomyclitis. | Gangrene. | Exhaustion. | Diarrhœa. | Dysentery. | Erysipelas. | Embolism of Heart. | Pneumonia. | Peritonitis and Liver Abscess. | Total. | Percentage of deaths to total operations. | Peritonitis. | Peritonitis, with internal Hernia. | Tetanus. | Shock. | Coma. | Uræmia. | Pelvic Cellulitis. | Sloughing of Bowels. | Phthisis Pulmonalis. | Compressio Cerebri. | Cholera. | Embolism of Basilar Artery. | Laceration of Brain. | Fatty Heart. | Total. | Percentage of deaths to total operations. | Grand Total. | Percentage to total operations. |
| 1864 | 195 | 22 | 4 | 4 | 2 | 1 | 0 | 0 | 0 | 1 | 34 | 17.43 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 2.05 | 38 | 19.48 |
| 1865 | 165 | 15 | 4 | 10 | 3 | 2 | 1 | 0 | 1 | 0 | 36 | 21.68 | 0 | 0 | 3 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 3.61 | 42 | 25.30 |
| 1866 | 153 | 12 | 3 | 12 | 2 | 0 | 0 | 1 | 2 | 0 | 32 | 20.91 | 0 | 1 | 2 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 8 | 5.22 | 40 | 26.14 |
| 1867 | 161 | 10 | 0 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 18 | 11.18 | 2 | 0 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 18 | 11.18 | 36 | 22.36 |

The results of the year of the change can hardly be taken as a fair criterion ; for during that period, so many of the sick and famine-stricken creatures who came into the city during the great calamity of that year were admitted, that the ordinary nature of the Hospital returns was, of necessity, different from what is usual. It appears from these returns of the Surgical operations, and they are perhaps the best test that can be applied to the sanitary condition of an Hospital, that, in the year 1864, there were one hundred and ninety-five important operations performed by Professor Partridge and myself, that, out of these, twenty-two died of Pyæmia and Osteo-myelitis, four of Gangrene, four of Exhaustion, two of Diarrhœa, one of Dysentery, one of Peritonitis and Liver Abscess, making a total of thirty-four deaths (or 17.34 per cent.) out of one hundred and ninety-five cases, from what may be truly called blood-poisoning diseases. Of other diseases, there were, out of the number, four from Shock, (or 2.05 per cent. out of the whole number,) or in all thirty-eight deaths out of one hundred and ninety-five cases (or 19.48 per cent.).

In 1865 the record shews one hundred and sixty-five cases of operation, out of which fifteen died of Pyæmia and Osteo-myelitis, four of Gangrene, ten of Exhaustion, five of Diarrhœa and Dysentery, one of Erysipelas, and one of Pneumonia; being a total of thirty-six cases of blood-poisoning diseases in one hundred and sixty-five cases, or 21.68 per cent.

There were also out of this number of one hundred and sixty-five cases, three deaths from Tetanus, one from Shock, one from Coma, one from Anæmia, making six deaths, or a total of forty-two, or 25.30 per cent. of the whole number. These were before the diminution of beds took place.

In 1866 it appears that there were one hundred and fifty-three important operations, of which twelve died of Pyæmia and Osteo-myelitis, three of Gangrene, twelve of Exhaustion, two of Diarrhœa, one, where the most evident cause of death was plugging of the right side of the heart, and two from Pneumonia, making in all thirty-two deaths from blood-poisoning, or 20.91 per cent. out of one hundred and fifty-three cases. There were also out of this number, one death from internal Hernia, two from Tetanus, one from Shock, four from other causes, making a total of forty out of one hundred and fifty-three, or 26.14 per cent. of the whole. Not much improvement you will say, excepting in the item of Pyæmia, where you have twelve out of one hundred and fifty-two, against fifteen out of one hundred and sixty-five in the previous year, and twenty-two out of one hundred and ninety-five in the year before that.

In 1867 the record tells of one hundred and sixty-one important operations, with ten deaths from Pyæmia and Osteo-myelitis, six from Exhaustion, two from Erysipelas, eighteen in all from blood-poisoning diseases, or 11.18 per cent. There were also five deaths from Tetanus, four from Shock, two from Cholera, and seven from other causes, making a total of eighteen, or thirty-six in all, or a percentage of 22.38.

Now these facts may not shew anything very definite, but still they are sufficient to prove that there is a diminution in the particular class of cases, viz. Pyæmia and Osteo-myelitis, to which I more particularly referred in my last address in 1865; and so far I think that, even by the imperfect evidence of statistics on a small scale (and they are only really reliable on a large one) it is proved that the condition of the Hospital has improved during the past two years.

I avail myself of this opportunity of requesting your attention to certain other interesting Surgical matters, and first of all to one to which, I believe, we are in no small degree indebted for the diminution in blood-poisoning diseases after Surgical operations, wounds and accidents, and that is, the application of the antiseptic principle in the treatment of Surgical disease. It is within the last eight or ten years that the discoveries of Pasteur Schrœder, Pouchet, Davaine and others, of the existence in the atmosphere, of myriads of germs of vegetable infusorial organisms, capable of the most rapid multiplication, and of resisting a temperature above 240° Fahrenheit, have thrown much light on the occurrence of blood-poisoning after injuries and operations. These germs develop rapidly in the presence of organic fluids and give ~~use~~ rise to putrefactive changes, some require the presence of Oxygen for their action, such as the Bacteria. The Vibrios, on the other hand, develop where Oxygen is wanting. They require an organic fluid (a menstruum) for their reproduction, and putrefactive or fermentative changes accompany their growth. These germs increase according to the amount of organic impurity in the air, and therefore abound richly wherever men, and especially sick men, are crowded together. This constitutes what is called the septic condition of the atmosphere, and it is one that has a great influence on wounds and Surgical operations. These germs of Bacteria-termo are most abundant. There are also Mycoderms, Mucedines, and Torulæ, and they not only have these properties of rapid development and of inducing various changes, such as the alcoholic, acetous, butyric, and lactic fermentations, but they rapidly induce putrefaction in organic matters, and give rise to septic conditions by which the blood is contaminated.

They have great power of resisting destruction, a temperature of 260° Fahrenheit it is said being necessary to ensure their death. Now, it has been ascertained that, when an organic infusion has been deprived of these germs by a high temperature, and is protected from their further access from the air, it remains as unalterable as any ordinary chemical solution; no tendency is shown to decomposition, no symptom of life is manifested. The germs that are developed in organic infusions, are certainly according to this theory introduced from the air.*

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* Professor J. H. Bennett has recently, in a lecture delivered before the Royal College of Surgeons in Edinburgh, expressed his dissent from these views of the origin of germs in relation to septic poisoning, and adduces arguments which, to say the least of it, are apparently as cogent as those of the physiologists whose theories he denies. Professor Bennett says:—"They originate in oleo-albuminous molecules, which are formed in organic fluids, and which floating to the surface form a pellicle or proligerous matter. There, under the influence of certain conditions, such as temperature, light, chemical changes, density, pressure, and composition of atmospheric air, and of the fluid, etc. the molecules by their coalescence, produce the lower forms of vegetable and animal life," and this process of development, Dr. Bennett illustrates by the penicillium crustaceum, which, he says, is formed in this way. This is a question in fact, of the molecular theory of organization which inculcates that all the tissues are formed by the successive production of histogenetic or formative, and histolytic or disintegrative molecules. And as to the doctrine "omne vivum ex ovo," he says this expression is a formula, which only imposes on the understanding, checks the search after truth, and is already overthrown by the advance of science. "The notion of every particle being necessarily derived from its like is erroneous; the law of descent from parents, which we recognize in the higher animals, changes as we descend in the scale: first to *parthenogenesis*, whereby this direct descent is broken, and ultimately to heterogenesis, in which it is lost. This theory is certainly startling and revives the question of spontaneous generation. But if true, it still explains the beneficial action of the carbolic acid, which in this case must be regarded chiefly for its local value as an arrester of germ development in the fluids of the wound itself, and not in the air. The application of the principle would thus be narrowed from its general to its local utility."

Professor Lister of Glasgow, in studying the effects of these septic changes in wounds and injuries, conceived the idea of excluding these noxious elements entirely from wounds and suppurating surfaces, and thus of protecting the natural restorative power of the tissues. To quote his own words: "The material which I have employed is Carbolic or Phenic Acid, a volatile organic compound, which appears to exercise a peculiarly destructive influence on low forms of life, and hence is the most powerful antiseptic with which we are at present acquainted. The first class of cases to which I applied it, was that of compound fractures, in which the effects of decomposition on the part are especially striking and pernicious. The results have been such as to establish conclusively the great principle that all the local inflammatory mischief and general febrile disturbance, which follow these injuries, are due to the irritating and poisoning influence of decomposing blood or sloughs. These evils are entirely avoided by the antiseptic treatment, so that limbs, which otherwise would be unhesitatingly condemned to amputation, may be retained with confidence of the best results. Since the antiseptic treatment has been brought into full operation, and wounds and abscesses no longer poison the atmosphere with putrid exhalations; my wards, though in other respects under precisely the same circumstances as before, have completely changed their character; so that, during the last nine months not a single instance of Pyæmia, Hospital Gangrene or Erysipelas has occurred in them."

The main object of this antiseptic mode of treatment is the purification of the air, which is to gain access to the wound, and not the local application of a specific agent to the wound itself. To fulfil this intention, it is necessary that the injured part should be enveloped in the antiseptic agent, which according to Professor Lister, is Carbolic Acid, according to others, Sulphurous acid, or any other agent that has the power of destroying these germs.

The process of repair is thus allowed to proceed undisturbed by contaminated atmosphere, and there is reason to believe that when this can be really effected, the powers of nature are equal to much more than is generally supposed.

The Carbolic Acid is thus used as a protective, and not as a corrective, and it is this point in particular that Professor Lister has demonstrated. No doubt as a local application, and as a deodorizer and local antiseptic, destroying organic effluviæ which have already existed, it is also very useful, and is or should be, much used on a large scale. But this, though important, is, as you will perceive, very different from its application as a purifier of the air, and a preventive of septic poisoning. For some months this principle has been freely applied by my colleague and myself, in the wards of this Hospital, and if we cannot speak with the unqualified enthusiasm of some of its advocates, we can, at all events say, that we have found in it an important addition to our means of combating Pyæmic disease.

I have with the aid of my house Surgeon, Baboo Mohendro Nath Guptoo, made out a list of cases treated by Carbolic Acid during the last three or four months. It is too long to read, but I have abstracted from it the results of the most interesting cases; and though I am hardly in a position to prove by figures that our success has been greater than usual, I am able to state my conviction (and it is that of my colleague also) that many of these cases would, without the Carbolic acid, certainly have done badly, and one or two cases I shall request your attention to, as singularly illustrative of the facts.

## Carbolic Acid Cases.

| | No. | Bone. | Date of Admission. | Date of Discharge. | Number of days under treatment. | Result. |
|---|---|---|---|---|---|---|
| Compound Fractures. | 1 | Right Tibia | 2nd Augt. 1867 | 11th Nov. 1867 | 3 months 9 days | Recovered. |
| | 2 | Right Tibia and Fibula | 1st Sept. 1867 | 15th Nov. 1867 | 2 months 15 days | Ditto |
| | 3 | Right Tibia | 29th Sept. 1867 | 20th Jan. 1868 | 3 months 20 days | Ditto |
| | 4 | Right Tibia and Fibula | 21st Octr. 1867 | 25th Jan. 1868 | 3 months 4 days | Ditto |
| | 5 | Ring Finger | 8th Dec. 1867 | 27th Jan. 1868 | 1 month 19 days | Ditto |
| | 6 | Index Finger | 13th Jany. 1868 | Still under treatment, very nearly well. | | |
| Amputations. | 1 | Symes' Amputation Foot | 23rd Sept. 1867 | 27th Sept. 1867 | 4 days | Died from Pyæmia. |
| | 2 | Leg by modified circular method | 21st Octr. 1867 | 25th Jan. 1868 | 3 months 4 days | Recovered. |
| | 1<br>3 | Finger, with a portion of metacarpal bone | 8th Dec. 1867 | 27th Jan. 1868 | 1 month 19 days | Ditto |
| | 4 | Ditto | 14th Jan. 1868 | Still in Hospital. | | |
| | 5 | Ditto | 16th Jan. 1868 | Ditto ditto | | |

## Carbolic Acid Cases.—*(Continued.)*

| | No. | Part. | Date of Admission. | Date of Discharge. | Number of days under treatment. | Result. |
|---|---|---|---|---|---|---|
| WOUNDS. | 1 | Head. | 4th Oct. 1867 | 29th Oct. 1867 | 25 days | Recovery. |
| | 2 | Scrotal Tumor. | 11th Oct. 1867 | 12th Jan. 1868 | 2 months 15 days From the date of operation. | Ditto. |
| | 3 | Leg. | 14th Oct. 1867 | 26th Oct. 1867 | 12 days | Died from Tetanus. |
| | 4 | Head. | 18th Oct. 1867 | 7th Nov. 1867 | 20 days | Recovery. |
| | 5 | Leg. | 25th Oct. 1867 | 25th Jan. 1868 | 3 months | Ditto. |
| | 6 | Scrotal Tumor. | 28th Oct. 1867 | 17th Dec. 1867 | 12 days, from the date of operation. | Died from Tetanus. |
| | 7 | Hand. | 30th Oct. 1867 | 26th Dec. 1867 | 1 month 26 days | Recovery. |
| | 8 | Scrotal Tumor. | 6th Nov. 1867 | 22nd Dec. 1867 | 18 days, from the date of operation. | Died from Diarrhœa and Exhaustion, |
| | 9 | Leg. | 12th Nov. 1867 | 20th Nov. 1867 | 8 days | Died from Diarrhœa. |
| | 10 | Behind Ear. | 13th Nov. 1867 | 15th Jan. 1868 | 2 months 2 days | Recovery. |
| | 11 | Right Elbow. | 27th Nov. 1867 | 20th Dec. 1867 | 23 days | Ditto. |
| | 12 | Mammary Region. | 4th Dec. 1867 | 21st Dec. 1867 | 17 days | Ditto. |
| | 13 | Head. | 25th Dec. 1867 | 12th Jan. 1868 | 17 days | Ditto. |
| | 14 | Foot. | 28th Dec. 1867 | 22nd Jan.. 1868 | 25 days | Ditto. |
| | 15 | Perineum. | 18th Dec. 1867 | 12th Feb. 1868 | 1 month 24 days | Ditto. |

## Carbolic Acid Cases.—*(Continued.)*

| | No. | Part. | Date of Admission. | Date of Discharge. | Number of days under treatment. | Result. |
|---|---|---|---|---|---|---|
| Wounds. | 16 | Below the Chin. | 5th Jan. 1868 | 15th Feb. 1868 | 1 month 10 days | Recovery |
| | 17 | Perineum. | 10th Jan. 1867 | 27th Jan. 1868 | 17 days | Ditto. |
| | 18 | Head. | 16th Jan. 1868 | 22nd Jan. 1868 | 6 days | Relieved. |
| | 19 | Hand. | 17th Jan. 1868 | 18th Jan. 1868 | 1 day | Ditto. |
| | 20 | Forehead. | 3rd Feb. 1868 | 19th Feb. 1868 | 16 days | Recovery |
| | 21 | Ditto. | 26th Jan. 1868 | 28th Feb. 1868 | 1 month 2 days | Ditto. |
| | | Ditto. | 27th Jan. 1868 | 28th Feb. 1868 | 1 month | Ditto. |
| | 22 | Lower Jaw. | 27th Jan. 1868 | Still in Hospital. | | |
| | 23 | Head. | 26th Jan. 1868 | Ditto ditto. | | |
| | 24 | Thigh. | 19th Feb. 1868 | Ditto ditto. | | |
| | 25 | Fore-arm. | 24th Feb. 1868 | Ditto ditto. | | |
| | 26 | Leg. | 20th Jan. 1868 | Ditto ditto. | | |
| | 27 | Knee. | 28th Jan. 1868 | Ditto ditto. | | |
| | 28 | Nose. | 19th Feb. 1868 | Ditto ditto. | | |
| | 29 | Labium. | 1st Nov. 1867 | Ditto ditto. | | |
| | 30 | Breast. | 11th Oct. 1867 | Ditto ditto. | | |

## Carbolic Acid Cases.—*(Continued.)*

| | No. | Part. | Date of Admission. | Date of Discharge. | Number of days under treatment. | Result. |
|---|---|---|---|---|---|---|
| Wounds. | 31 | Finger. | 13th Jan. 1868 | Still in Hospital. | | |
| | 32 | Inguinal Region. | 10th Feb. 1868 | Ditto | ditto. | |
| | 33 | Chest. | 14th Feb. 1868 | Ditto | ditto. | |
| | 34 | Inguinal Region. | 22nd Jan. 1868 | Ditto | ditto. | |
| | 35 | Head. | 28th Feb. 1868 | Ditto | ditto. | |
| | 36 | Foot. | 9th Dec. 1867 | Ditto | ditto. | |
| | 37 | Scrotal Tumor. | 20th Dec. 1867 | Ditto | ditto. | |
| | 38 | Arm and Chest | 30th Dec. 1867 | Ditto | ditto. | |
| | 39 | Inguinal Region. | 8th Jan. 1868 | Ditto | ditto. | |
| | 40 | Legs. | 8th Jan. 1868 | Ditto | ditto. | |
| | 41 | Scrotal Tumor. | 20th Dec. 1867 | Ditto | ditto. | |
| | 42 | Ditto. | 24th Feb. 1868 | Ditto | ditto. | |

## Carbolic Acid Cases.—*(Continued.)*

| | No. | Where. | Date of Admission. | Date of Discharge. | Number of days under treatment. | Result. |
|---|---|---|---|---|---|---|
| ULCERS. | 1 | Penis. | 11th Sept. 1867 | 30th Sept. 1867 | 19 days | Recovery |
| | 2 | Leg. | 27th Sept. 1867 | 26th Jan. 1868 | 4 months | Ditto. |
| | 3 | Penis. | 7th Nov. 1867 | 6th Dec. 1867 | 1 month | Ditto. |
| | 4 | Foot. | 22nd Nov. 1867 | 13th Dec. 1867 | 20 days | Ditto. |
| | 5 | Soft Palate. | 2nd Dec. 1867 | 5th Dec. 1867 | 3 days | Death. |
| | 6 | Scrotum. | 18th Dec. 1867 | 10th Feb. 1868 | 23 days | Recovery |
| | 7 | Leg. | 30th Oct. 1867 | 24th Feb. 1868 | 3 months 24 days | Ditto. |
| | 8 | Ditto. | 19th Feb. 1868 | Still in the Hospital. | | |
| | 9 | Elbow. | 11th Oct. 1867 | Ditto ditto. | | |
| | 10 | Ankle. | 5th Jan. 1868 | Ditto ditto. | | |
| | 11 | Leg. | 10th Jan. 1868 | Ditto ditto. | | |

| | |
|---|---|
| Recovered ... ... | 32 |
| Relieved ... ... | 2 |
| Died ... ... | 6 |
| Remaining ... ... | 25 |
| Grand Total, ... | 65 cases. |

*Abstract of Cases treated in the First Surgeon's Ward, with a mixture of one part of Carbolic Acid, and five of Linseed Oil.*

| Date of Admission. | Number. | Names. | Sex. | Disease. | Result. | Date of Result. | Remarks. |
|---|---|---|---|---|---|---|---|
| 2nd August 1867 | 1 | Ramlal Ghose, | M | Compound commtd. fracture of Tibia. | Recovery | 11th Nov. 1867 | Compound commtd. fracture of right Tibia at its middle, caused by a fall from his horse. |
| 1st Sept. 1867 | 2 | Prankissen Mullik, | ,, | Compound fracture of right Tibia and Fibula just above the ankle. | Ditto | 15th Nov. 1867 | Compound fracture of right Tibia and Fibula above the ankle, by a fall from a height of about of 10 feet. |
| 4th Sept. 1867 | 3 | Golucknauth Roy, | ,, | Necrosis of the last metatarsal bone of right foot and of the phalangeal bones. | Death | 27th Sept. 1867 | Symes' amputation at the foot performed on the 23rd September, and the patient died on the 27th, of Pyæmia. |
| 11th Sept. 1867 | 4 | Jadooputty Haldar, | ,, | Sloughing of Penis. | Recovery | 30th Sept. 1867 | Patient had an attack of cholera, and was taken away by his friends. |
| 27th Sept. 1867 | 5 | Jhagoo, | ,, | Sloughing ulcers of leg. | Ditto | 26th Jan. 1868 | Suffering from two sloughing ulcers of the legs since last 1½ month. One placed above inner malleolus of left leg, and the other at the middle of the right. |

| Date of Admission. | Number. | Names. | Sex. | Disease. | Result. | Date of Result. | Remarks. |
|---|---|---|---|---|---|---|---|
| 29th Sept. 1867 | 6 | J. L. | M | Compound fracture of right Tibia. | Recovery | 20th Jan. 1868 | Fracture was simple on admission, but subsequently became compound by the formation of two or three openings. |
| 4th Oct. 1867 | 7 | Gopaulchunder Aitch, | ,, | Contused wound on the head. | Ditto | 29th Oct. 1867 | Had a contused wound on the head by the fall of a piece of wood from a height of 12 feet. Bone not denuded. |
| 11th Oct. 1867 | 8 | Tarruknauth Doss, | ,, | Scrotal Tumor. | Ditto | 12th Jan. 1868 | Scrotal Tumor about the size of a cocoanut for the last seven years. Operated on the 28th October 1867, dressed with carbolic and oil. |
| 14th Oct. 1867 | 9 | Sabaram, | F | Incised wounds. | Death | 26th Oct. 1867 | Sustained several incised wounds of the legs, by falling upon a heap of broken bottles. Patient was doing very well as regards wounds, but died of traumatic tetanus. |
| 18th Oct. 1867 | 10 | Sopna, | M | Vascular Tumor. | Recovery | 7th Nov. 1867 | Has had a tumour about the size of a marble on the right side of his head for the last 1½ month. Tumour removed on the 18th October 1867 under chloroform. |

| | | | | | | |
|---|---|---|---|---|---|---|
| 21st Oct. 1867 | 11 | Nowbuth Khalasee, | ,, | Compound commtd. fracture of both bones of left leg at their middle. | Ditto | 25th Jan. 1868 | Caused by the limb being run over by the wheel of a Railway Engine half an hour before admission. Primary amputation performed at the upper part of the leg. Patient came in very low. Discharged with a wooden leg. |
| 25th Oct. 1867 | 12 | Gourchunder Ghose, | ,, | Necrosis of left Tibia, | Ditto | 25th Jan. 1868 | The disease first commenced with an abscess about six months ago. Necrosed portions removed. There was ulceration of the leg. |
| 28th Oct. 1867 | 13 | Mudhoosudun, | ,, | Scrotal Tumor of 20 years' standing. | Death | 17th Dec. 1867 | In consequence of bad health, the operation was postponed till the 5th December 1867, when it was performed. Patient was doing very well ; but for the traumatic tetanus which came on on the 15th December 1867, of which he died. |
| 30th Oct. 1867 | 14 | Lukhun, | ,, | Large lacerated wound on the palm of left hand. | Recovery | 26th Dec. 1867 | Caused by fall of a block of wood. |
| 6th Nov. 1867 | 15 | Hossney, | ,, | Scrotal Tumor of 10 years' standing, of the size of a large cocoanut. | Death | 22nd Dec. 1867 | Operated on the 4th December 1857, died on the 22nd December 1867 of diarrhœa and exhaustion. Had elephantiasis of both the legs. |
| 7th Nov. 1867 | 16 | C. W. | ,, | Sloughing chancre. | Recovery | 6th Dec. 1867 | Ditto ditto ditto. |
| 12th Nov. 1867 | 17 | Ramdeen, | ,, | Necrosis of right Tibia. | Death | 20th Nov. 1867 | Died of chronic diarrhœa. |

### *Abstract of Carbolic Acid Cases in the First Surgeon's Ward.*

| Date of Admission. | Number. | Names. | Sex. | Disease. | Result. | Date of Result. | Remarks. |
|---|---|---|---|---|---|---|---|
| 13th Nov. 1867 | 18 | Radhachurn, | M | Medullary tumor behind the ear. | Recovery | 15th Jan. 1868 | Has had a tumour of the size of a goose's egg behind the right ear for the last year. Tumour removed on the 26th November 1867. |
| 22nd Nov. 1867 | 19 | Gyah, | F | Sloughing ulcer of the toes. | Ditto | 15th Dec. 1867 | Ditto ditto ditto. |
| 27th Nov. 1867 | 20 | Doloo, | M | Cystic tumor on the inner side of right elbow of one year standing. | Ditto | 20th Dec. 1867 | Tumour removed on the 27th of November 1867. |
| 4th Dec. 1867 | 21 | A. M. | F | Mammary Tumour. | Ditto | 21st Dec. 1867 | Ditto ditto ditto. |
| 25th Dec. 1867 | 22 | B. V. | M | Contused wound. | Ditto | 12th Jan. 1868 | |
| 2nd Dec. 1867 | 23 | Soorathnauth Mookerjee, | ,, | Sloughing ulcer of soft palate. | Death | 5th Dec. 1867 | Patient came in moribund, suffering from enlarged spleen and low intermittent fever. |
| 8th Dec. 1867 | 24 | Ojeer, | ,, | Compound commtd. fracture of left ring finger. | Recovery | 27th Jan. 1868 | Amputation of the finger, with head of metatarsal bone. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 28th Dec. 1867 | 25 | Kallydoss Mookerjee, | ,, | Epithelioma of great toe. | Ditto | 22nd Jan. 1868 | Toe removed under chloroform. |
| 18th Dec. 1867 | 26 | E. P. | ,, | Sloughing of scrotum. | Ditto | 10th Feb. 1868 | Ditto ditto ditto. |
| 18th Dec. 1867 | 27 | Obhoychurun Mittra, | ,, | Fistula in ano. | Ditto | 12th Feb. 1868 | Fistula laid open on the 18th December 1867. |
| 5th Jan. 1868 | 28 | Shaik Omad, | ,, | Epithelioma removed on the 8th January 1868. | Ditto | 15th Feb. 1868 | An Epithelioma, about the size of an eight anna piece below the lower lip of seven months' standing, commencing first as a small pimple. |
| 10th Jan. 1868 | 29 | Sittanauth, | ,, | Fistula in ano. | Ditto | 27th Jan. 1868 | Fistula laid open on the 10th January 1868. |
| 16th Jan. 1868 | 30 | E. P. | ,, | Contused wound on the head. | Relieved | 22nd Jan. 1868 | Patient was discharged at his own request. |
| 17th Jan. 1868 | 31 | H. J. | ,, | Lacerated wound. | Ditto | 18th Jan. 1868 | Ditto ditto ditto. |
| 3rd Feb. 1868 | 32 | Bheem Doss, | ,, | Contused wound on the forehead. | Cure | 19th Feb. 1868 | |
| 26th Jan. 1868 | 33 | Bamah Dossee, | F | Ditto ditto. | Ditto | 28th Feb. 1868 | Wound healed long before her discharge, but she was detained by the injury to her hip. |
| 27th Jan. 1868 | 34 | Shaik Alloo, | M | Ditto ditto. | Ditto | 28th Feb. 1868 | |
| 13th Feb. 1868 | 35 | S. R. | F | Contused wound of the head. | Ditto | 26th Feb. 1868 | |
| 30th Oct. 1867 | 36 | Naseebun, | ,, | Sloughing ulcer of leg, | Ditto | 24th Feb. 1868 | Patient took grs. iii of opium every three hours. |

*Following cases still in the Hospital.*

| Date of Admission. | No. | Names. | Sex. | Disease. | Result. | Date of Result. | Remarks. |
|---|---|---|---|---|---|---|---|
| 27th Jan. 1868 | 1 | Ramrutun, | M | Necrosis of lower jaw. | Cure | ...... | Necrosis of right lower jaw of $2\frac{1}{2}$ years' standing. Four sequestra removed on the 29th January 1868, and the patient is now nearly well. |
| 26th Feb. 1868 | 2 | Abdool Kader, | ,, | Contused wound on the forehead. | Ditto | ...... | The wound is very nearly well. |
| 13th Jan. 1868 | 3 | Jonardhone, | ,, | Compound commtd. fracture of left index finger. | Ditto | ...... | Amputation at the line of the wound performed on 14th January 1868, and the patient is nearly well. |
| 19th Feb. 1868 | 4 | Judoonauth Ghose, | ,, | Sinus in the thigh | Doing well | ...... | Patient came in with a large sinus on the upper and outer part of left thigh extending upwards, but not leading to necrosed bone. |
| 19th Feb. 1868 | 5 | Juggessur | ,, | Sloughing ulcer of leg. | Ditto | ...... | Ulcer is now granulating, all the sloughs separated. |
| 24th Feb. 1868 | 6 | Nutto, | ,, | Incised wound on the forearm. | Ditto | ...... | There is slight suppuration of the wound. |
| 20th Jan. 1868 | 7 | Troylukonauth Banerjee, | ,, | Necrosis of fibula. | Ditto | ...... | Sequestrum removed on the 8th February 1868, and since then patient doing well. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 11th Oct. 1867 | 8 | Kadernauth Doss, | ,, | Chronic ulcer about the elbow. | Ditto | …… | Excision of the elbow performed on the 25th October 1867, and the patient doing well at present. |
| 5th Jan. 1868 | 9 | Mathoor, | ,, | Hypertrophy and ulceration about the ankle. | Ditto | …… | A fish wounded his left ankle a year ago when bathing. |
| 28th Jan. 1868 | 10 | Toolsee, | F | Incised wound behind the left knee. | Ditto | …… | Wound and the surrounding tissues became gangrenous; but since the application of carbolic acid, wound is doing well. Gangrenous portions separated. |
| 19th Feb. 1868 | 11 | Johorum, | ,, | Polypus of nose. | Ditto | …… | Polypus removed on the 24th February 1868, and the incised part dressed with carbolic acid and oil. Slight suppuration in the wound. |
| 1st Nov. 1867 | 12 | Kally, | ,, | Hypertrophy of both labia majora. | Ditto | …… | Hypertrophied parts removed on the 17th December 1867, the patient is very nearly well. |
| 11th Oct 1867 | 13 | Mrs. M. C. A. | ,, | Cancer of breast. | Ditto | …… | Breast removed on the 9th December 1867, the wound is very nearly cicatrized. |
| 13th Jan. 1868 | 14 | J. N. | M | Paronychia right middle finger. | Ditto | …… | Finger removed on the 26th January 1868. Patient is nearly well. |
| 10th Feb. 1868 | 15 | J. W. | ,, | Inguinal hernia left side. | Ditto | …… | Operated on the 25th February 1868, the wounds dressed with carbolic acid and oil, after the plug was removed. |
| 10th Jan. 1868 | 16 | T. T. | ,, | Chronic ulcer of the left leg. | Ditto | …… | Ulcer cicatrizing; before applying the carbolic acid, Liquor Lyttæ had been applied. |

## *Remaining in the Hospital.*

| Date of Admission. | No. | Names. | Sex. | Disease. | Result. | Date of Result | Remarks. |
|---|---|---|---|---|---|---|---|
| 14th Feb. 1868 | 17 | A. P. | M | Stabbed wound. | Doing well | …… | Stabbed wound in the left hypochondrium. |
| 22nd Jan. 1868 | 18 | T. P. | ,, | Inguinal hernia direct left side. | Ditto | …… | Wounds dressed with carbolic acid and oil after the removal of plug. Operated on the 18th February 1868. |
| 28th Feb. 1868 | 19 | Gopaul Kahar, | ,, | Contused wound on the head. | Ditto | …… | Ditto ditto. |
| 9th Dec. 1867 | 20 | Shaik Kadu, | ,, | Lacerated wound behind the right heel. | Ditto | …… | Came in with a large lacerated wound behind the heel, caused by the fall of a bar of iron. Wound dividing the tendo achilles and fracturing the os calcis. |
| 20th Dec. 1867 | 21 | Shaik Omur, | ,, | Scrotal tumor. | Ditto | …… | Tumor removed on 9th January 1868, and the patient very nearly well. |
| 30th Dec. 1867 | 22 | Mohendronauth, | ,, | Adhesion of arm to the side of the chest. | Ditto | …… | Result of a burn cicatrix dissected out the 20th January 1868. |
| 24th Jan. 1868 | 23 | W. W. | ,, | Inguinal hernia right side. | Ditto | …… | Operated on the 27th January 1868 Patient doing well. |
| 8th Jan. 1668 | 24 | Azim, | ,, | Syphilitic periostitis. | Ditto | …… | Abscess opened, notwithstanding the use of Potas, Iodid, and the application of Liquor Lyttæ. |
| 20th Dec. 1867 | 25 | Jadoo Doss, | ,, | Scrotal tumor. | Ditto | …… | Tumor removed on the 26th of December 1867, the wound cicatrized rapidly. |
| 24th Feb. 1868 | 26 | Ramessur, | ,, | Ditto | Ditto | …… | Tumor removed on the 2nd March 1868, weighed 15lbs. 15oz. |

Carbolic acid is used in various ways: the pure acid is sometimes applied at once to the surface of a wound, it not only protects it against contamination, but it guards against any possible septic absorption, by coagulating albuminous fluids and blood, and thus plugging the open vessels. As an oleate or glycerate, *i. e.* one part of the strong acid to four or five of oil or glycerine, it is most frequently used for ordinary dressing. Professor Lister also applies it in the form of a paste. As a lotion, in the proportion of one to four drachms to a pint, it is an excellent stimulant, detergent, and antiseptic wash. The paste we have not used here.

The result in these cases has been so favourable, so different from what we have been accustomed to; so exactly what we might expect, if the theory of M. Pasteur and Mr. Lister's application of it be true, that I think the conclusion is inevitable, that we have at our disposal a new and powerful auxiliary in the treatment of disease. It seems to have inspired equal confidence in Europe, and appears to be freely used in most large metropolitan and provincial hospitals in Great Britain. We trust it will fulfil the great expectations it has raised, and that it may be freely used, not only in hospitals as a preventive of disease, but wherever large numbers of men are crowded together, as a preservative from those septic conditions which there is too much reason to believe cause mischief to wounds and injuries, and are largely concerned in the production and spread of zymotic disease.

The following is an abstract of some of the most important cases that have been treated with carbolic acid in my wards, since its introduction into the practice of this hospital:—

Five amputations, of which four recovered and one died, the death in this case occurred from pyæmic symptoms in an enfeebled constitutions ; the operation was an amputation of the foot.

Six cases of compound fracture, all recovered ; four of these were of the lower extremity and were very severe ; in these, perhaps more than in other cases, the benefit of the carbolic acid was shewn.

Of wounds and surgical operations, including the removal of scrotal and other tumours, there were forty-three cases ; twenty-one of these resulted as follows :—seventeen cured or relieved, and four died. There are twenty-two cases still under treatment, and they are for the most part doing well.

Of abscesses, ulcers, sloughing sores, &c., there were eleven well-marked cases ; six were discharged cured, one died, and the remainder are doing well under treatment.

There is not much in this return, perhaps, to convey definitive proof of the beneficial results of carbolic acid ; but to the surgeons who treated and watched the cases, its good effects were very apparent, and the circumstance of each have impressed them with the most satisfactory evidence of its value. It was frequently obvious that, just at a point in its progress, where the supervention of unfavourable symptoms was dreaded, the aspect of a case became favourable, when former experience would have led them to anticipate the reverse ; and the impression left on their minds, certainly on mine, is that they have found a valuable auxiliary in the treatment of surgical disease. I shall read you one or two cases, more in detail, illustrative of the action of carbolic acid, and those who have had experience of such cases, will be able to form an opinion on the subject for themselves.

### CASE 1.

### *Gun-shot Fracture of Femur.*

Woozir Ally, aged 25 years, admitted 2nd Surgeon's Ward, 11th February 1868, with compound comminuted fracture of the right femur, at the junction of the middle with the lower third, caused by a bullet wound. A splinter of the femur, about 2½ inches long, and 1 broad, was removed. Wound dressed with carbolic acid and oil, and leg and thigh put on a long splint. For the first few days after the accident, the patient suffered from attacks of fever, with the pulse at 128, and temperature 103°, but there were no rigors.

*April 20th.*—At present the patient is doing well; pulse on an average 100. Temperature 103°. Tongue clean. Wound contracting with slight discharge of healthy pus.

Doing very well; on 12th May another small piece of bone separated. I am indebted to Dr. Partridge for this important case.

### CASE 2.

### *Compound Fracture of Leg.*

Joomun Khan, aged 36 years, Mahomedan, Police Sowar, was admitted into Dr. Partridge's Ward, on the 16th of July, 1867, having sustained a compound fracture of the right leg, by a fall from his horse. A lacerated wound communicated with the fracture. The tibia was denuded of its periosteum to the extent of about an inch above and below the fracture. There was a good deal of bleeding; and the ends of the bones were considerably displaced.

On admission the fracture was reduced, and side-splints were applied to the leg, the wound was dressed with carbolic acid, after the bleeding had ceased. On the 4th day after admission, a McIntyre's splint was applied.

There was considerable suppuration about the seat of fracture, and superficial sloughing attended with fever for about a fortnight after admission : carbolic acid dressing was continued.

On the 29th July a piece of bone, about two inches long, was removed from the wound.

Sloughs gradually separated, and the wound assumed a healthy aspect. There was ulceration in different parts of the leg from the pressure of the splint.

A piece of bone, about an inch long, was removed on the 21st August from the upper fractured end ; and on the 22nd September, a piece, about two inches long, from the lower fractured end ; several small pieces of bone exfoliated subsequently.

By the end of September 1867 the wound was much smaller, and the fracture was somewhat firm.

21st October 1867 the wound over the fracture is about the size of an eight anna bit ; bed-sore and ulcers on other parts of the same leg healing ; fracture firmer.

On the 8th November 1867 the fractured bone not yet quite firm ; ulcer healing ; strength much reduced.

On the 27th November the McIntyre splint was removed, and a side-splint applied to the inner side of the leg.

On the 10th January 1868, the ulcer over the fracture was quite healed, union of fracture firm.

On the 21st January the splint was removed.

On the 6th March the fracture was quite firm; there are superficial ulcers in three or four places, brought on originally by pressure of the splint; he is in very weak health.

The wounds were dressed throughout with carbolic acid mixed with linseed oil, in the proportion of acid ʒi with oil ℥iv.

He died afterwards of diarrhœa, having recovered from the fracture; but being much reduced by long confinement, he sunk under the exhaustion of the attack of diarrhœa.

### CASE 3.

### *Compound Fracture of Leg.*

Prankissen Mullik, aged 14 years, admitted 1st September, 1867, with compound fracture of right tibia and fibula, about two inches above the ankle, caused by a fall from a height of about 10 feet, two hours before admission. About two inches of the upper fragment of the tibia protruded through a large lacerated wound, with the periosteum stripped off here and there. Bones reduced. Wounds dressed with carbolic acid and oil, and the leg put on a MacIntyre's splint. The patient did very well throughout the whole period of the treatment; there was no constitutional disturbance of any kind, except slight fever, for the first three or four days after admission; after which the wound, from which there was hardly any suppuration, began to heal.

On the 21st October 1867 the splint was removed. Union seemed pretty firm. Wound very nearly healed. No shortening. Simple bandage applied.

By the 5th November 1867 the union was quite firm. Wound entirely healed; he could walk pretty well. No shortening.

On the 15th November 1867, discharged—Carbolic acid and oil dressing had been applied throughout the whole period.

### CASE 4.

### *Compound Fracture of Leg, Amputation.*

Nowbuth Khalasee, aged 25 years, admitted 21st October, 1867, with compound comminuted fracture of both the bones of the left leg, about the middle, caused by the limb being run over by the wheel of a Railway engine, an hour before admission. Bones were smashed into pieces, splinters projecting in all directions, with extensive laceration of the muscles, vessels, &c., &c.

Immediate amputation (one hour after accident) of the leg, three inches below the tuberosity was performed by Dr. Fayrer's modified circular method. Patient became very low on the operating table. The cut ends of the bones were dressed with carbolic acid. The surface of the wound was sponged with the same, and the whole wound dressed in like manner. Dressing changed next day. Patient began to gain strength rapidly, and the wound to heal, without much suppuration.

On the 3rd January 1868 the stump was quite healed, and the general health was good.

He remained in hospital till the wound had cicatrized, when he was discharged with a wooden leg.

### CASE 5.

A native lady, aged about 30 years, of healthy constitution, and in the eighth (8th) month of pregnancy, had had the cavity of the left knee joint opened by an incision made with the view of evacuating a collection of fluid, the result of inflammatory action. I saw her some days after the injury had been inflicted. There was considerable constitutional disturbance due to the formation of an enormous popliteal abscess, as well as irritation from the wound of the joint. A probe passed freely into the joint, touching the surfaces of the bones. The abscess in the popliteal space was opened, and about 20 ounces of pus evacuated. The wounds were then dressed with the glycerate, *i. e.* carbolic acid one part, glycerine three parts, and placed on a splint. She never had after this, whilst under my observation, a single untoward symptom.

She rapidly recovered. The wounds healed ; and within a month, she returned to her home, with the knee joint slightly flexed, but with no anchylosis, and evidently no mischief in the cartilages.

This is a most unusual result of a wound of the knee joint, and the favourable termination may, I think to a great extent, be attributed to the antiseptic.

I have said that, to a certain extent, I believe the general health of the majority of our patients is compromised by malaria ; that certain tendencies to disease are thereby impressed, and that the phenomena of other disordered conditions are modified and characterised by its presence. I probably express no novel view of this matter, when I say that an ague fit is perhaps one of the least frequent forms in which malaria expresses itself, and that a thousand other symptoms, affecting chiefly the nervous and the vascular systems, indicate its operation as distinctly as the best marked quotidian or tertian could do. It is certainly in my experience that persons may be, so to speak, saturated with malaria, and yet never have had fever, until the change of climate, or the sea voyage, that was to renovate the broken-down general health, developed it, much to the astonishment of the sufferer; or the accident that to another would have proved slight, gives rise to an attack of fever which prostrated the patient completely. I think that I have remarked the influence of malaria in another instance, which must be within the experience of almost every surgeon who has practised in Bengal, and that is, the great tendency to fever of a paroxysmal character after catheterism—a condition which, when developed, may be called urethral fever.

It is well known to surgeons everywhere, that the passage of a bougie or catheter is sometimes followed by constitutional disturbance very similar to an attack of ague, *viz.* rigors followed by pyrexia and profuse sweating; or if the actual ague fit be absent, there is often a state of lassitude, with muscular pains and debility, loss of appetite, nervous exhaustion, and turbid urine, shewing elimination by the kidneys of phosphates, or nitrogenous detritus a low febrile condition, with a dry tongue and herpetic eruptions about the lips; this condition may last for some days and finally pass away, leaving the patient weak and broken down in physical, as well as mental, strength. These symptoms may occur even when there is no urethral disease, after the passage of an instrument for the purpose of relieving or exploring the bladder, and they may assume any intensity, from that of a simple transient feeling of malaise to the most deadly paroxysm of fever. I say may, because it is not always that any constitutional disturbance follows catheterism, fortunately in a large number of cases, no such untoward result occurs. In certain individuals, nor is it possible that I am aware of to say in whom, it will happen; but in those who suffer from stricture of the urethra, it appears that the proclivity is most marked; and in such cases the passage of an instrument may give rise to constitutional disturbance of the most serious character, especially, as I am inclined to believe, in the malarious climate of Bengal.

It was supposed by Sedillot that the morbid changes found in cases of ordinary urethral fever were due to septic absorption, and that they only occurred when the mucous membrane of the urethra had been lacerated in the operation. But it can hardly be so, for they are not confined to cases where the urethra has been injured, nor are they frequently found to occur after the most severe operation on the urethra through the perineum. It is, I believe, chiefly in cases of old stricture, that the most formidable symptoms arise, and happily it is rare that the passage of a bougie or catheter is followed in ordinary cases by anything worse than an ague-like paroxysm. But in certain old strictures, where there is a combination of organic obstruction with spasm, and probably a thickened bladder, and kidneys and prostate in an incipient state of disease, we must bear in mind this morbid tendency, and not only endeavour to prepare the patient by rest, sedatives, and other appropriate treatment, but effect the dilatation as gently and carefully as possible, when we commence the treatment. The pathological condition under consideration has been explained to be due either to reflex action from the urethra through the nerve centres, or to septic absorption from the lacerated mucous membrane of the urethra. I cannot altogether accept the latter explanation, although I think it possible that in some cases it may be the case, for the results are generally quite disproportionate to the injury; and in the most striking examples, the symptoms of constitutional disturbance follow too rapidly after the operation to admit of such an explanation. I should rather attribute it to reflex action through the nervous system, and it is perhaps one of the best examples of what our predecessors called " constitutional irritation," expressed in one case by the mildest,in another by the severest disturbance, and even death. Though the precise method or channel by which this is brought about may not be apparent, it is not more difficult to comprehend than that tetanic spasm of the muscles of the jaws should follow the insertion of a thorn into the finger ; convulsions attend the cutting of an infant's tooth ; or hæmorrhoids give rise to a pain in the sole of the foot.

The true cause of this urethral fever is to be sought for in common with those that explain the phenomenon of fever generally, such as the cold, the shivering, and the hot fits ; and however the first impression may be produced, whether by retention in the blood, or the absorption into it, of some morbid material ; or by the irritation of certain peripheral nerve filaments and reflex action through the nerve centres, thus affecting the whole economy, the phenomena and results are similar. I have selected two cases as strikingly illustrative of the worst consequences of this accident ; though such are fortunately not frequent, they serve to shew what may occur in the treatment of stricture, and are the severest expressions of a condition which, as in other fevers, may be, in one instance, a mere chill, in another a rigor that precedes death.

### Case 1.

A healthy-looking Englishman, J. E. N., aged 38 years, cook of a ship, admitted 14th June 1867, with irritable organic stricture of the urethra.

He was in the First Surgeon's Ward of Medical College Hospital about two years ago for the same complaint, and was discharged relieved after three months' treatment. The stricture was of a very irritable nature, and had great tendency to contract after dilatation. No special treatment was resorted to, except slow dilatation of the stricture by the bougie; division of the stricture was proposed as the only chance of giving permanent relief, but not submitted to.

Since his discharge the urethra has contracted again. He has been in another hospital for some time, where, he says, the stricture was split by a dilator, but without permanent benefit. The operation was not attended, however, with much constitutional disturbance.

He was in a Liverpool hospital also a few months ago for stricture of urethra, where instruments were passed.

He has been in the habit of passing No. 6 catheter himself, when he feels difficulty in micturating.

15*th*.—The stricture was dilated with Holt's dilator. No. 12 catheter was passed afterwards and urine withdrawn. There was slight difficulty in introducing the catheter on account of the spasm.

R. Quinine, gr. v.
Tr. Opii min. xxv. immediately.
Fomentations every four hours.

6 P. M.—Has passed only a few drops of water since the operation, with much straining. Bladder not distended, slight oozing of blood from the urethra. Has considerable pain and fever, which was preceded by a rigor. Catheterism was gently, but not successfully, tried, on account of spasm.

Diaphoretic mixture, with Tr. Hyoscyami every three hours.
Opium Suppository.
Fomentations every four hours.

16*th.*—Has, with much straining, succeeded in passing a few drops of urine. Complaining of pain all over the abdomen, which is tense, hard and tympanitic. Tongue dryish and furred at the centre. No more bleeding from the urethra. Extremities rather cold. Pulse very weak. Can retain neither food nor medicine.

A catheter was passed, no urine found in the bladder.

Ordered.—Turpentine stupes to the abdomen, and fomentation every two hours.

Opium, gr. i. every three hours.
Castor Oil and Turpentine enema.
Mustard plaster to the abdomen.
20 leeches to the abdomen.
Brandy and Soda-water frequently.

2 P. M.—Leeches have fallen off after drawing blood freely. No more vomiting. Two stools. Pain in the abdomen easier. Pulse very weak. Has not made water—not drowsy. Very restless and thirsty, quite conscious up to the last.

Died at 5 P. M.

### *Post Mortem Examination.*

Urethra dissected out. There was some ecchymosis in the bulbous portion of the urethra, and a small clot of extravasated blood outside it. The stricture was in front of the membranous, extending into the bulbous portion of the urethra. Two old false passages led downwards to the bulb, but did not perforate it; urethra otherwise entire. At the seat of stricture, the urethra was slightly split, but only in the mucous membrane. Abdomen opened. Small intestines somewhat congested, no peritonitis or effusion of lymph in the abdomen. Both lungs much congested. The right having two or three tubercular deposits in its apex. The bases of both œdematous and not crepitant. Heart adherent to the pericardium by old ligamentous bands. Right ventricle contained some dark fluid blood. Liver enlarged and fatty, weighing 4 lbs. 1 oz. Kidneys much congested, capsules tearing off easily. Bladder thickened, contracted, and empty.

No sign of inflammation or mischief of any kind about the bladder or in the pelvis.

### *Remarks.*

This may be regarded, at first sight, as death caused by uræmia. But the symptoms were not such as to justify the supposition. The fever and great prostration after it, with the tympanitic state of the abdomen, made me think at first that some injury had been done to the peritoneum, and that peritonitis was the result, but the "*post mortem*" shewed that such was not the case, and that there was nothing whatever in the urethra to account for it, excepting through the medium of the nervous system. The perfect consciousness and clearness of intellect until the moment of death, are also opposed to the supposition that death was caused by uræmia.

### *Remarks by Dr. Colles on the Post Mortem Examination.*

Bladder and part of urethra of J. E. N. aged 38, admitted 14th June, with stricture of years' standing. Holt's dilator used on 15th, patient died on 16th.

No peritonitis was found. The heart was united to the pericardium by old adhesions ; its muscular tissue was healthy, no fatty degeneration, valves healthy. Lungs somewhat congested. Kidneys highly engorged with blood ; the tubules in the cortical portion full of imperfectly formed epithelial scales. Bladder is healthy ; somewhat thickened. Urethra contains two false passages, just in front of the prostate, going a little way beneath the mucous membrane. Nearer the bladder is seen the superficial rupture of the mucous membrane caused by the dilatation.

### Case 2.

P. H. R—, a healthy-looking East Indian trader, aged 41 years, was admitted on the 21st June 1867, with stricture of the urethra of 13 years' duration. He passed water formerly in a very fine stream ; but for the last four years in drops ; it dribbles day and night soiling his dress.

Never had complete retention of urine ; catheterism was once tried about two years ago unsuccessfully. Had no perineal abscess or fistula. On the day of his admission, catheterism was tried, but the instrument could not be introduced into the bladder. The stricture was hard and occupied the bulbous and the front of the membranous portion of the urethra.

6 P. M.—Has had fever since 2 P. M. preceded by a rigour. Passed water more freely ; slight bleeding from the urethra.

Effervescing draught, with Tincture of Hyoscyamus every three hours.

22*nd*.—Fever still continuing. Pulse 96. Tongue moist. Bleeding from the urethra has stopped.

Diaphoretic Mixture ℥i.
Potas : Bicarb : gr. x, every three hours.
Milk, sago and soup ; iced water.

*23rd.*—Two stools. No fever. Slept well. No thirst. Feels weak, otherwise better in every respect. No. 5 catheter passed into the bladder, commencing from No. 2.

R. Quinine gr. x.
Tr. Opii min. xxv. station.

*24th.*—Has had fever since last night, but no rigors. Passing urine as before in drops.

6 P. M.—No fever now. Had a rigor. Bowels open.

Quinine gr. v. every four hours.

*25th.*—Had shivering again in the night. Pulse 100 full. Two stools. Some pain in the perineum, no swelling. Tongue clean.

Continue Diaphoretic Mixture.
Fomentations to the perineum.

*26th.*—Pulse 100. Temperature 102°. Fever still continuing. No more shivering. One stool.

Continue medicine.

5 P. M.—Passed four thin stools. Complains of a griping pain.

Tr. Opii mini. xxx. statim.

7 P. M.—Pulse 108, very weak. Temperature 102°. Vomited three times. Tongue clean and moist. Has taken very little food. Passed water. Omit all medicines.

Mustard plaster over the stomach.
Beef tea and brandy half an ounce of each every hour, soda-water and ice.

27*th.*—Two stools in the night passed in bed clothes. Tongue warm and moist. No vomiting. Made urine. Extremities cold. Pulse imperceptible at the wrist. Carotid 140. Respirations 52. Temperature in axilla 102°. Hand 92°. Mouth 102°.

Mustard plaster over the heart.
Brandy ʒiv.
Ether Chloric min: xx.
Spirit Ammo: Aromatic: min: x. every half hour.

4 P. M.—Pulse in the carotid 132. At the wrist *nil.* Temperature 103°. Respiration 48. Two stools consisting of a slight brownish fluid. No more vomiting. Extremities cold. No reaction yet. Quite conscious. Eyes somewhat congested. Occasionally delirious, but for the most part conscious until just before death. Died at midnight.

### *Post Mortem Examination.*

Coats of the bladder hypertrophied. Its inner surface much congested. Ureters dilated and thickened. Kidneys partially congested and fatty. The stricture was in front of the membranous portion of urethra. Lungs healthy, hypostatically congested. There were no clots in the right cavities of the heart. Some atheromatous deposit in the tricuspid and mitral valves. Slight suppuration in the bulbous portion of urethra.

### *Notes on the Post Mortem Examination by Dr. Colles.*

Bladder, urethra, and kidneys of P. H. R—, an East Indian, æt. 41, admitted 21st June, with stricture of 13 years' standing. For four years he has only passed water in drops. No. 2 catheter was passed on 23rd. He died on 27th.

The stricture is seen just at the bulb ; there is slight laccration of the mucous membrane, and a shallow old false passage which existed on admission. The bladder is thickened and sacculated ; its mucous membrane is full of ridges and pits ; the former when the viscus was opened, being of a dark purple colour from intense congestion, with patches of extravasation of blood. Both ureters slightly dilated. Kidneys ; cortical structure pale ; on pressing papillæ of the tubular portion, some purulent-looking fluid escaped, consisting wholly of large flattened irregular epithelial cells, with large nuclei and nucleoli, and, mixed with these bodies, which may be either free nuclei or pus cells. The structure of the cortical portion shews numerous epithelial cells, mixed with granules, singly or in masses. The liver was pale, rather friable, and with the lobules ill-marked. The cells under the microscope are seen to be full of fat globules (which are also scattered through the parenchyma), and with their nuclei indistinct.

The muscular fibres of the heart were not fatty.

### *Remarks.*

This was a case of urethral fever induced in a strong, healthy-looking man by the simple passage of an instrument. There was no injury. There was evidence neither of pyæmia nor of embolism. Death occurred as in the collapse of any exhaustive disease. It is true that he had diarrhœa the last two days of his life, but this was, I believe, due to the same cause as the collapse generally and when death was approaching.

In neither of these cases was there any injury done to the urethra that could be considered sufficient in itself to cause death, nor were there any indications of pyæmia or embolism. In one case a slight tear in the urethra where the stricture had been split, in the other slight suppuration about the seat of dilatation, but nowhere any inflammatory changes to suggest blood-poisoning or embolism. It is true that both were men more advanced in life than their ages of thirty-eight and forty-one implied, and that in the one case the liver, and in the other the kidneys, were somewhat fatty; but there was nothing in either, that indicated, before the operation was performed, any structural or organic disease, and they both were quite as healthy and strong in appearance as the majority of persons who undergo surgical treatment. In neither case was any violence used in dilating the stricture, nor was there at the time anything to indicate suffering or unusual injury; far less indeed than we frequently see inflicted in the dilatation of obstinate strictures that slowly yield to treatment, and are unattended by constitutional disturbance.

It is evident that catheterism has a tendency to induce this condition of fever through reflex action, and that it may do so, in certain constitutions, especially where old strictures exist in malarious persons, if the viscera be in the least diseased.

I have not recorded any other cases, as it seems to me that these sufficiently illustrate the most serious consequences that may result from catheterism. It is almost our daily experience that the operation is followed by a rigor; in some cases by a severe attack of fever; and I can recall to my memory several instances in which it was followed by serious internal changes; in one an abscess in the wrist joint, in another in the eye-ball, and in a third in the liver. Can we in any case predicate that such constitutional mischief will follow? I fear not! But it behoves the surgeon in all cases to be most careful to use the instrument with as little violence and with as much patience as possible, and to avoid, if he can, inflicting injury on the lining membrane of the urethra. In cases of stricture, and especially those that are old and irritable, rest for some time before and after the passage of the instrument, with the use of antiperiodics and sedatives may be productive of much benefit; above all, if the first attempt at catheterism have developed the tendency to febrile disturbance, it is right to wait until that has entirely passed away, before any attempt be resumed to pass the instrument. Patience is most essential, and no urgency on the patient's part should induce the surgeon to force the dilatation, which is more likely to be followed by delay than speed. The increase in size of the instruments passed should be gradual, a new number every second or third day. "Festina lente" should be the motto to guide us in such cases, and we may rest assured, it will prove to be the best economy of time as well as of labour.

I have yet another subject to which I wish to request your attention, and I will do it as briefly as possible considering its importance. In the year 1862 I introduced into my wards a new and, as it seemed to me, more simple method of operating for the radical cure of hernia. I had previously practised that which is known as "Wützer's," or some of its modifications, such as that by Mr. Redfern Davis, with some success; but owing to the complicated apparatus, and the tedium of the treatment, I was led to search for something that might prove as efficacious and, at the same time, more simple. I was indebted for the idea to Mr. Syme's plan of treating hernia, and that I have adopted and now practise, and which I propose to explain, is a modification of Professor Syme's method. I have, up to the end of 1866, operated on 67 cases in the hospital, and have had several since; some of these cases are still under treatment, and those who are capable of being brought before the meeting I submit for your inspection, that you may have an opportunity of seeing the treatment in this stage. I also hope to shew you certain cases that have been operated on some time ago, and have thus satisfactorily solved the doubtful question whether the operation which at first is successful, can be permanent in its good results.

The object of the operation is to close or so far contract the opening in the abdominal wall on its inner peritoneal aspect that the protrusion of the hernia shall be limited, or altogether prevented; and the mode in which this is accomplished, is by procuring adhesion or contraction of the margin of the opening, whether at the internal ring in oblique inguinal hernia, or of the direct opening in the other form. I believe that unless the operation effect this purpose it is not likely to be successful; and as it is not possible to make certain of always accomplishing this end, a proportion of cases will fail. I find that, out of the 67 cases operated on in the hospital, 11 failed altogether, 9 were only relieved, that is, though not successful altogether, yet were so much improved that the hernia was controllable by a truss; one case only died; and in this instance, death was not due to peritonitis, but to erysipelas affecting the thorax; so that, although no doubt death was indirectly due to the operation, it was not the immediate result of it. Indeed, I know of no operation of importance attended with so little danger. Wound of the peritoneum does not necessarily involve dangerous consequences; more than once I have injured it by puncture, as proved by the free discharge of peritoneal fluid, but no ill result followed; in one case related in the Annals, this happened; the patient recovered and wrote to me from Ceylon some months after to say that he was perfectly well. The recoveries in nearly all the cases have been rapid, and the proportion of success most gratifying; when we consider the importance of a favourable result, it is impossible not to feel satisfied that so simple a surgical proceeding should suffice so often to ensure it.

I have placed the instruments with which I operate on the table for your inspection, and you will see that they are very simple ; a plug of wood, with two ligatures, and a curved needle to pass the ligatures through the abdominal wall ; a second small piece of wood to knot the ligatures over, completes the apparatus. The method of performing the operation is simple, but it requires some care and confidence for its effective completion. The fore-finger of the left hand oiled, is inserted into the inguinal canal, and the scrotum invaginated is pushed before it up to the internal ring with firm and decided pressure. One ligature, strong and well waxed, is then threaded in the needle, the point of which is insinuated along the palmar aspect of the finger on its radial side, until it has reached the extreme apex of the invagination ; it is then forced through the abdominal parietes, and appears on a line with the anterior superior spine of the ilium ; about 1½ or 2 inches internal to. The needle is then unthreaded and withdrawn, to be threaded with the second ligature, and again introduced, this time on the other side of the finger to be pushed through the abdominal wall as before ; this time transfixing a short distance from the point where it first pierced,but emerging though the same opening in the integument.

The needle is again unthreaded and withdrawn. The plug is now pulled into the canal, the apex being tied firmly against the apex of the invagination, and the threads firmly knotted over the small piece of wood. The operation is thus completed.

The plug is left in situ for three or four days or more, until pus appears to flow freely from besides the ligatures. These are then cut, and the plug withdrawn. The discharge is gently pressed out, a pad and spika bandage are applied, and the patient is kept in bed and cautioned not to strain at stool for some days ;

as soon as the wounds have cicatrized, a truss may be applied, which should be worn for some months, especially when any exertion is made; it may gradually be left off when the tissues have become firmly consolidated. The time occupied in treatment varies from a month to six weeks in ordinary cases; if there be much suppuration, and that have burrowed among the abdominal muscles, there may be delay, and counter-openings may be necessary, but such cases are the exception. The only one was that of a native who was attacked with erysipelas and died of pyæmia, the result of cellulitis.

During the period of the insertion of the plug, the bowels generally remain confined, and indeed for several days after its removal; should they act, the patient must be warned against efforts at straining.

I find, by referring to the records of my wards, that I have, up to the end of 1867, operated sixty-seven times. In 1862 fifteen cases, of which ten succeeded, one was relieved, and four failed. In 1863 eight cases, of which five were successful, two were only relieved, and one failed. In 1864 eight cases, of which six were successful, two relieved. In 1865 fourteen cases, of which ten were successful, three relieved, one failed. In 1866 seven cases, five successful, two failed. In 1867 fifteen cases, of which ten were successful, one was relieved, three failed, and one died.

The fatal case, Ram Coomar Doss, was admitted on the 27th February 1867.

Ram Coomar Doss admitted on the 27th February 1867, with inguinal hernia of left side; operated on the 5th March 1867, died on the 26th March 1867 of erysipelas. Extensive suppuration was set up between the muscles. Erysipelas took place in the chest, the cellular tissue sloughed, and free incisions were made to expose the sloughy tissues. After death, consolidation was found of two lower lobes of right lung, and one large pyæmic patch of upper lobe. There were no cardiac coagula.

There was thus a total of sixty-seven cases, of which forty-six were apparently successful; nine were relieved; eleven failed altogether, and one died.

Before discharging any of those returned as cured, they were submitted to the severest tests, lifting weights, climbing up a pole, jumping, running up and down-stairs without a truss; and unless they were able to bear this test, they were not considered as cured. In many of these I fear the hernia may have returned afterwards. But I have seen some after a long interval, and am happy to say there can be no doubt that, in these cases, the improvement is permanent.

I have placed on the table a specimen illustrative of the mode in which the occlusion is effected; it was the case of a French sailor, who had been operated on some months before he met with an accident, which caused his death. You will see that the internal ring is perfectly closed. I have also brought into the room several patients who are recovering from the operation, and so far they promise to do well. I have also some persons who were operated on at different periods of time past, and you will be able to judge by them how far we may, in favourable cases, hope to succeed.

I would here repeat what I have often before stated that I regard the operation as one of a somewhat uncertain character as to its results, but offering a sufficient prospect of success to warrant the surgeon, and justify the patient, in attempting it.

I must not detain you further, and thank you for giving me your attention so long.

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